MAJOR LAND-USE PROBLEM AREAS

AND

LAND UTILIZATION IN OHIO

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by

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FOREWORD

Over a period of years the Department of Rural Economics has been collecting material regarding the use of rural lands in Ohio. This material was assembled and added to by the State Planning Board, of which Dr. J.I. Falconer is a member, and submitted as a part of their report to the National Resources Board in August, 1934. Subsequently Mr. R.H. Baker, the Ohio land planning consultant for the National Resources Board, enlarged upon the material already available and in cooperation with the Ohio State Planning Board, the Rural Economics Department and other agencies outlined the major land use problem areas in Ohio. This material was submitted by him to the National Resources Board in September, 1934.

The present report assembles and coordinates the material from these various sources. Part I is a presentation and discussion of those areas that were considered to present a major land-use problem or problems arising out of past and present use of the land. Part II is a presentation of some of the significant physical, economic and social factors related to land-use.

This report is to be considered as preliminary, as it is planned to continue the work and to submit more adequate material as it is developed. It is for this reason that the report is presented in its present loose-leaf form, which can be added to and changed as new material is developed.

In addition to the men and contributing agencies specifically mentioned, several members of the staffs of the Ohio Agricultural Experiment Station, the College of Agriculture, and the Agricultural Extension Service have given valuable assistance in the preparation of this report. The authors gratefully acknowledge their indebtedness to these men and agencies.

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont'd)

LIST OF MAPS

PART I

MAJOR LAND-USE PROBLEM AREAS IN OHIO

PART II

LAND UTILIZATION IN OHIO

LIST OF MAPS (Cont'd)

PART I

MAJOR LAND-USE PROBLEM AREAS IN OHIO

Introduction

By executive order, June 30, 1934 a National Resources Board was created to prepare and present to the President a program and plan of procedure dealing with the Physical, social, governmental and economic aspects of public policies for the development and use of land, water and other national resources. The report on land-use problems was to be prepared by the Land Section of the Technical Committee of the Board under the direction of Dr. L.C. Gray. State land planning consultants working through ten regional land planning consultants were to submit state land-use reports to be coordinated into the national report.

All areas or districts in which some readjustment or reorganization of major uses of the land seemed desirable were to be delimited and designated as problem areas. A problem area is defined as an area where land is deteriorating, and/or not producing sufficient income to provide a reasonable standard of living under its present use. The problem in each area was to be characterized, the nature of the adjustment desired was to be indicated, and means of effecting the adjustment were to be suggested.

The land-use areas outlined in accordance with this request (see Map, page 2) together with some description of the problem, nature, and means of effecting the desired adjustment are herein presented.

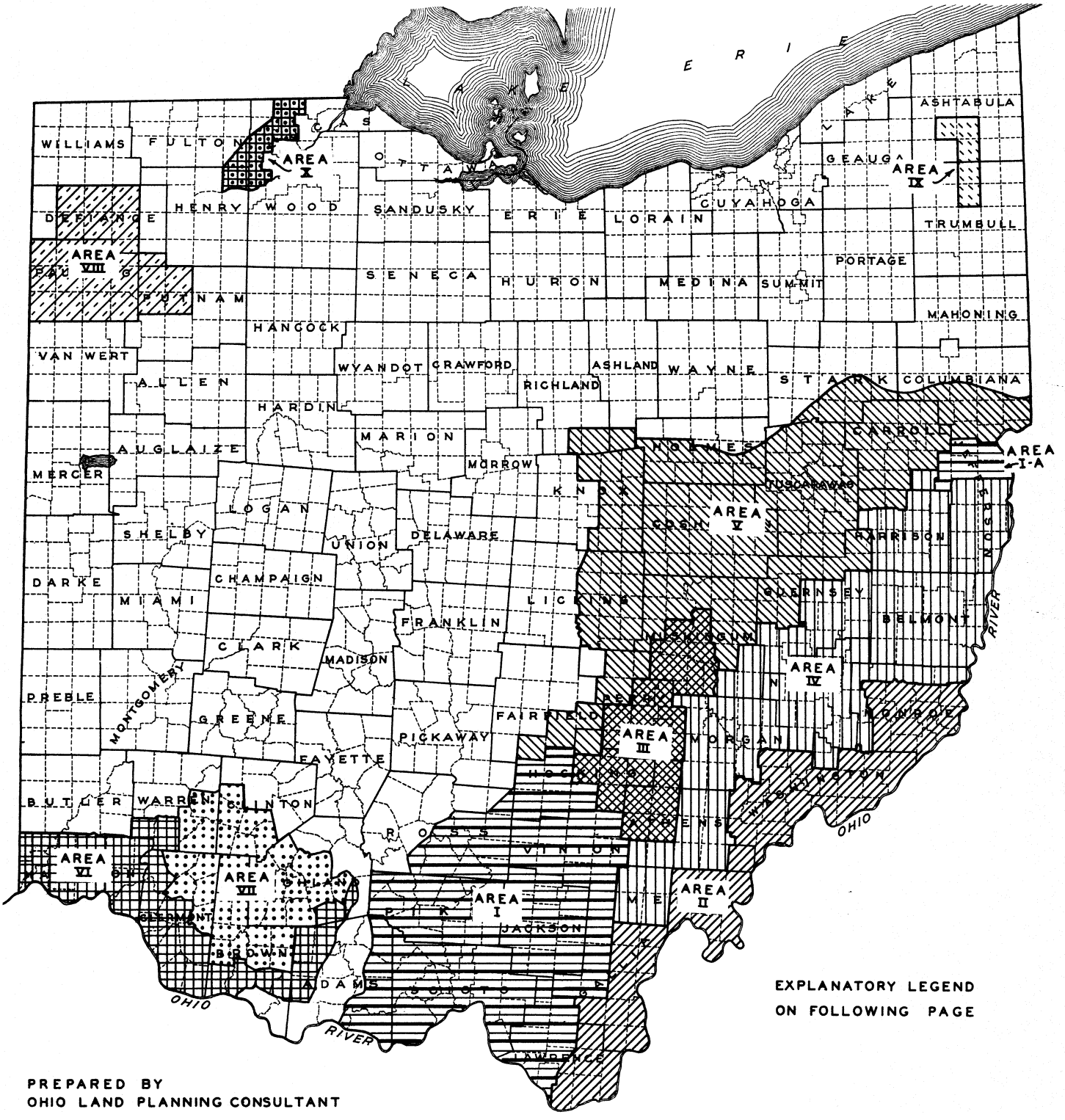
Land-Use Problem Areas

Area I

Area I, which is in the extreme south central part of the State, comprises parts of 9 counties, and contains approximately 2 million acres of which only 66 per cent is in farms. In 1929(1) 24 per cent of the land in farms was in crops, 45 per cent in pasture and 32 per cent in woods. On the basis of all of the land in the area only 16 per cent was in crops and 30 per cent in pasture, or in other words only 46 per cent of the total land in Area I (See p.4)

(1) Crops and pasture data derived from 1930 United States Census.

MAJOR LAND-USE PROBLEM AREAS - OHIO 1934



EXPLANATORY LEGEND
ON FOLLOWING PAGE

PREPARED BY
OHIO LAND PLANNING CONSULTANT

Map of Major Land-Use Problem Areas in Ohio (see preceding page)

Explanatory Legend:

I, IA, II and III - Areas in which a substantial part of the farms are on land of such low productivity that arable farming is uneconomical and inadvisable and should be replaced by other uses as forestry and recreation.

IV & V - Areas in which serious erosion and the impoverishment of the soil resources should be checked by a change in the cropping system and a pasture improvement program, if the lands are to be made capable of continued agricultural use.

VI - An area in which serious erosion occurs on the slopes, poor drainage and difficult tillage exists on the level upland, and the impoverishment of the soil is taking place generally. Changes in the cropping system and some improvement in drainage are necessary in establishing a productive agriculture.

VII - An area in which the soils are acid, poorly drained and difficult to till. A change in the cropping system to include more forage crops together with some improvement in drainage is necessary if the farms are to be made productive.

VIII - An area in which improvements in the drainage and tillage conditions should be effected by a change in the cropping system that will increase the organic matter in the soil, if much of the land is to continue to be productive.

IX - An area in which a part of the land, due to poor drainage and low productivity is better adapted to game preserves and forestry than to agriculture. On the remaining land a system of agriculture should be encouraged that can utilize large amounts of forage crops and pasture.

X - An area of deep sand in which a substantial part of the land is better adapted to forestry and recreation than to agriculture, due to soils that are generally of low productivity inclined to dry out badly on the slight elevations and frequently wet in the low places.

was used for agricultural purposes. Thirty-four per cent or 675,516 acres of land was outside of farms and since there are no large cities in this area except Portsmouth (42,560(2)), Ironton (16,621(2)) and Chillicothe (18,340(2)), this lack of use is not due to city influence. Data obtained from land-use studies in two counties in the area reveal that over half of the land outside of farms is wooded. Assuming this to be applicable to all of Area I, approximately 750,000 acres, or 38 per cent of the entire area, are in woods. In addition, much of the land that is not wooded is in brush and may be classed as potential forest land.

Muskingum silt loam(3) is the principal soil type in this area. In general, the area is hilly and broken, consisting of narrow winding ridges with steep slopes, separated by deep, almost gorge-like stream valleys. The western two-thirds of Area I comprises some of the most rugged land in the State. In the badly dissected areas only small patches along the streams should be cultivated; however, many slopes too steep for profitable agriculture are still being farmed. This has resulted in the removal of much if not all of the top soil from many of the long-cultivated fields. Erosion control would be too late on such lands to maintain agriculture; however, forestry will check further erosion and control the run-off of water.

In many counties the peak of rural population was reached before 1900 and has since been declining. This has resulted in decaying and disappearing social institutions. The general appearance of farm property is one of decadence, and with low income there is little or no way to maintain soil productivity or to make improvements and repairs on real estate. The length of residence of many families depends on how long the present buildings will last. In November, 1934 there were 24,171 rural people or 23 per cent of the open-country families on relief in this area.

The flood plain and terrace land along the Scioto River and other streams in Area I vary in width, some being as wide as 1 to 3 miles. These bottom-land soils are fertile, level and distinctly not problem lands.

The Forestry Service, in its preliminary recommendation to the National Resources Board, is proposing that a large part of Area I be turned into Federal and State forests, the more fertile slopes and valleys to remain in agriculture and to be used in a large part to rehabilitate

(2) 1930 Census figures.

(3) Muskingum Series includes soils with a grayish brown or yellowish brown surface and yellow subsoils. Within 18 to 30 inches are partially weathered sandstone and shale. Fragments of these rocks are common throughout the soil. Being derived from noncalcareous formations, the Muskingum soils invariably are acid.

the families that will be displaced by the forest. This seems advisable in view of the low productivity, the high percentage of land already in woods, and other factors, such as the present heavy relief load and tax delinquency.

A survey made by the Department of Rural Economics in cooperation with the United States Department of Agriculture of 300 hill farms in Vinton, Jackson and Meigs Counties revealed that the total cash receipts per farm was $1125 and farm expense was $580 in 1926(4). Over one-half of the farms visited had cash receipts of less than $1000 per year and 22 per cent had cash receipts of less than $500. The average receipts of the latter group was $348 and the farm expenses were $188 per farm. Only three-fourths of the average receipts of the 300 farms was derived from the sale of farm products, the remainder was from outside labor, oil and gas leases, etc.

Applying 1934 prices to the data obtained in the survey, the average cash receipts on the 300 farms would have been between $600 and $650 and farm expenses between $400 and $450 per farm in 1934. The receipts for the low income group would have been $175 to $225 and farm expenses $125 to $150 per farm in 1934.

Two rather intensive land-use surveys have been made in this area, one in Vinton County and the other in Lawrence County(5). In brief, the conclusions arrived at through these surveys were that large areas of land appear to be unable to support a system of agriculture that will yield its people a living and support the functions of local government. These were indicated by the abandonment of the land and mounting tax delinquency. A continuation of the present trend to abandon the poor areas, a development of agricultural activities in the more productive areas, a concentration of the part-time and self-sufficient type of farms along the good roads near good schools and social facilities, and the inclusion of the idle and abandoned lands in a public conservation and forestry program, were the recommendations offered for these counties.

Area I A, which includes the northern part of Jefferson County, is very similar to Area I except that being close to Pittsburgh and other centers of population it is a potential recreation area.

(4) One-third of the farms visited in the survey were located in a township in Meigs County which has been included in problem Area IV and the other two-thirds is located in townships in Area I. The sections in which the 300 farms were located are thought to be somewhat above the average of much of the land in Area I.

(5) "Land Utilization in a Southeastern Ohio County" (Vinton), Ohio Agricultural Experiment Station Bulletin No. 485, and "Land Utilization in Lawrence County", Ohio Agricultural Experiment Station Bulletin No. 514.

Area II

Area II, which is made up of parts of 6 counties bordering on the Ohio River from Lawrence through Monroe, comprises 1,065,361 acres. Of this amount 83 per cent is in farms, and of the land in farms 24 per cent is in crops, 52 per cent in pasture, and 20 per cent in woods. On the basis of all the land only 20 per cent is in crops, and 43 per cent in pasture. Thrity-seven per cent of all land is not used for either crops or pasture. The average value of land and buildings according to the 1930 United States census was $41 per acre of land in farms. This high average value is in part due to the presence of some productive truck land along the Ohio River and extending back from the river along some of the tributaries, particularly along the Muskingum River.

The flood plain and terrace land on the Ohio side of the River in this area is very narrow, seldom extending back more than one mile and generally not over one-half mile. Immediately back from the flood plain and terrace land the topography is usually quite rough. Many of the steeper slopes are wooded at the present time, primarily because they are too steep to farm.

The predominant soil types in the area are the Muskingum silt loam Upshur clay(6) and Meigs silty clay loam(7). All three of these soil types are associated with rolling to rough topography, and erode rapidly. In Area II soil erosion is an important factor in the general land-use problem. In much of the area a large part of the top soil is gone and the productivity of the soil for both crops and pasture is low. Much of the pasture is broom-sedge and poverty grass. The carrying capacity of the pasture is small and the present income of many of the farmers in the area is not sufficient to make the financing of pasture improvement possible.

The farms in this area average 86.8 acres as compared with 118 acres in Area I; however, if the small truck farms were excluded from the average, the remaining farms would probably average about the same in size as in Area I. There are some farms throughout the area that are too small to be effective farm units in the control of erosion or in the production of soil improving crops.

Abandonment of land for agricultural use has not progressed as far in Area II as in Area I. Sixty-three per cent of all the land in this area was used for agriculture in

(6) Upshur soils have reddish brown surface soils and red subsoils. These soils are neutral to slightly acid. They occupy rolling to steep lands. It is a rather strong soil and where the subsoil is calcareous alfalfa can be grown.

(7) The Meigs series is a mixed series. It includes yellowish brown soils derived from materials similar to those which give rise to the Muskingum soils, but having bands of red and greenish shales interbedded with sandstone and shale. The result is a mixture of Muskingum and Upshur soils.

1929 as compared with 46 per cent in Area I. A small amount of slightly better soil (Upshur Clay) and better markets together with some supplementary employment in other industries, either on a part-time basis or by full-time work in industry by one or more members of the family while the others operate the farm, have been factors delaying land abandonment. A market for fluid milk on both the Ohio and West Virginia side of the Ohio River provides an outlet for much of the milk produced in the area. The fresh fruits and vegetables that are being produced on the Ohio side of the river for the Ohio, West Virginia and Pittsburgh markets add to the income of some of the farmers. Even though the percentage of land used for agriculture is greater than in Area I the fact still remains that there is a substantial part that is of low productivity and highly erosive under existing farming methods. Sixteen per cent of the open-country population of the area was on active relief in November, 1934.

Much of this land is better adapted to forestry than to agriculture. The Forestry Service has designated a large part of the area as potential and desirable forest land for the State. In this area it will be desirable to maintain the valleys and the gentler and more productive slopes in agriculture, both to rehabilitate the people replaced by the forest and to supply food for the local markets.

On the rolling lands where it is desirable to continue to farm, the cropping system should be changed to include fewer cultivated crops and more pasture and meadow crops, longer rotations, strip farming and contour cultivation in order that erosion may be reduced to a minimum. Pasture improvement programs to increase the productivity and reduce erosion should be instigated on lands that will justify improvement. Such a program will call for the application of lime and commercial fertilizers to the pastures and to the land to be seeded to alfalfa. An increase in the size of some of the remaining farm units will be desirable and necessary if an effective erosion-control and soil-improvement program is to be uniformly effective while the land is in the hands of private owners.

Area III

Area III comprises parts of Muskingum, Perry, Hocking and Athens Counties. It adjoins the northeastern part of Area I and forms, with Area I, a large contiguous area of low agricultural productivity. Area III contains approximately one-half million acres. The soil is predominantly of the Muskingum silt loam series. The area is hilly and broken, with narrow winding ridges and very little level land along the streams.

In Area III there is a dense unincorporated population, 62 persons per square mile or a total of 48,288 in 1930. The incorporated population was also large with a total of 79,955. Since 1910 the unincorporated population has declined about 10 per cent while the incorporated population has increased approximately 15 per cent. The farm population in the area was 16,600 or only 13 per cent of the total. A relatively large acreage of the land is either leased or owned for industrial purposes. Coal mining, ceramics, and oil and gas industries are important in the area and provide much of the income of the local people by giving employment to labor and by supplying a market for farm products, as well as through the payment of royalties and rentals on leases.

Only 63 per cent of Area III was in farms in 1929, and of the land in farms 26 per cent was in crops, 52 per cent in pasture, and 17 per cent in woods. Of the total land in the area only one-half was used for crops and pasture.

The rough topography, the soil types, and the type of agriculture which has long been followed by many of the farmers have been conducive to erosion. Low productivity and rapid run-off of the rain with the accompanying erosion, result in low agricultural incomes in the area. The state supplies assistance to the schools as sufficient local funds are not available. Nineteen per cent of the unincorporated population was on active relief rolls in this area in November, 1934.

The land-use problem in Area III is not greatly different from that in Area I. The decrease since 1900 in the number of farms, in the amount of land in farms, and in the amount of land in crops is similar to that which has occurred in Area I. The same soil type exists and the topography is rough although slightly less rugged than Area I. Low soil productivity and soil erosion are common to both areas.

There are conditions existing in Area III that are not typical of either Area I or II. In Area III the total population per square mile is 165 as compared with 72 in Area I and 65 in Area II. The dense population in the area together with the industrial use that is being made of much of the land will probably necessitate a somewhat different program in bringing about the desired land-use adjustment. Scattered through Area III are some communities that might be called stranded industrial groups, the result of exhaustion of local mines or shifts of mining capital to other more productive areas.

For three-fourths of the area, forestry would seem to be the most satisfactory use. The Forestry Service, in its preliminary recommendation to the National Resources Board, is proposing the southern two-thirds as a National Acquisition Area. Land values in this area in 1930 were 34 per cent higher than Area I and 13.5 per cent higher than Area II. Demand for residential and industrial purposes undoubtedly accounts for a large

part of this difference. These high land values, even though in many cases the land is of low productivity and is eroding, will prevent the acquisition of numerous tracts for forestry purposes.

Rehabilitation of large numbers of families, which would be necessary if a high percentage of Area III should be acquired for forestry further complicates the adjustment problem.

Part-time farms on the better lands near community and industrial centers for some of the stranded families will be a desirable use for some of the land.

Since there exists a market for food resulting from the dense population some of the land will be required for its production. An educational program to develop types of farming in the area that will supply the market needs and at the same time conserve the soil will be desirable and necessary. A pasture improvement and forage crop (legumes such as alfalfa) program will be worthwhile on the land that remains in agricultural use.

There are numerous large land holdings in the area that are owned for the mineral rights rather than for surface use and are often not in farms. Some form of public management or restrictions on the surface use of these holdings may be desirable.

Area IV

Area IV is a strip of land running northeast and southwest from Athens to Steubenville and comprises parts or all of Meigs, Athens, Morgan, Noble, Washington, Muskingum, Guernsey, Monroe, Belmont, Harrison and Jefferson counties. It contains approximately one and three-fourths million acres, of which 86 per cent is in farms. A total of 74 per cent of all the land in the area was used for agricultural purposes in 1929, 22 per cent for crops and 52 per cent for pasture. Of the land reported by the United States census as being in farms, 86 per cent was used. Pasture is the chief use of the land in Area IV which is sometimes known as the "pasture belt" of Ohio.

A large part of the soil in this area is either Westmoreland(8) or Belmont(9) silty clay loam. Because these series are naturally less acid than the typical Muskingum soils much of the soil in Area IV supports a blue-grass vegetation which furnishes good pasture. The margins of this area were not

(8) Westmoreland is a mixed series consisting of Muskingum and Brooke soils. It differs from the Muskingum series principally in that it is influenced to some extent by limestone and calcareous shales and typically has a somewhat heavier subsoil.

(9) The Belmont series includes areas of red soils affected to a noticeable extent by limestone. It may be regarded as a mixture of red soils (Upshur) limestone soils (Brooke) and sandstone and shale soils (Muskingum).

necessarily limited by the margins of the Westmoreland and Belmont soils but were made to include a few adjoining townships in which pasture was the predominate use of the land. Sixty-one per cent of the land in farms in this area was pastured in 1929. Although the percentage of land pastured was uniformly high throughout the area, the carrying capacity of the pasture varied greatly, that on the limestone soils being better than that on the sandstone and shale soils.

The entire area can be classed as hilly or sharply rolling and quite a large percentage is so steep that it interferes with cultivation. The interbedded shales and limestones on the Westmoreland soils have weathered into rounded hills with long, smooth slopes. The limestone soils are less subject to erosion than are the intermingled Muskingum soils; however, excessive pasturing and continuous cultivation of steep hillsides has resulted in erosion. Very little effort has been made to maintain or rebuild the fertility of the pasture land, and large acreages that formerly supported large flocks of sheep or herds of beef cattle have very low carrying capacity at present. The effect of the decline in productivity of the pasture has meant lower income to the operators. In an effort to maintain farm income, over-pasturing and cultivation of excessive slopes are common. The small volume of business on many farms in the area makes the financing of soil improvement and erosion control difficult. A continuation of the present system of farming in this area will encourage erosion and lead to an unproductive soil condition that will not provide a minimum standard of living. This will result in a condition similar to that which now exists on a substantial part of the farms in Areas I, II, and III, where a large percentage of the land is no longer used for agricultural purposes. Already abandonment of fields and occasionally whole farms is occurring in Area IV. Ten per cent of the unincorporated population of the area was on active relief rolls in November, 1934.

Reduction of 18 to 30 per cent in the number of farms and from 30 to 40 per cent in the amount of land in crops took place in the counties in Area IV between 1900 and 1930. Land in farms in Noble and Morgan counties decreased very little since 1900; however, reductions in other counties in the area ranged up to 23 per cent.

An erosion-control and soil-improvement program, applicable to soil and topographic features as found in this area, will be necessary. Otherwise the farms will not long continue to support the existing farm population. Some of the adjustments that will be necessary are:

1. Remove from the pasture area all lands too steep or rough to improve as pasture.
2. Improve the remaining pasture area. Good sods erode very little and pay better as pasture.
3. Reduce the acreage of cultivated crops and devote the land to pasture and forage crops.
4. Lengthen the rotations.

5. Use strip farming and cultivate on the contour.
6. Maintain the soil fertility at a higher level of production.
7. Increase the acreage of alfalfa-timothy meadows.

Pasture improvement in the form of an application of lime if needed and superphosphate will increase the production of many fields and tend to overcome the destructive effect of over-pasturing.

The putting into operation of a program that will make it possible to maintain a sound agriculture in the hands of private owners in Area IV calls for an intensive educational program, possibly supplemented by subsidized demonstrative projects similar to those which are being carried on by the Federal Soil Erosion Service in several parts of the United States. It will first be necessary to sell the farmers on the desirability of the program and then provide credit facilities for putting it into effect.

Area V

Area V is situated in the east-central part of the State and includes parts or all of Columbiana, Carroll, Stark, Harrison, Tuscarawas, Guernsey, Muskingum, Coshocton, Holmes, Ashland, Richland, Knox, Perry, Licking, Fairfield and Hocking counties. The area contains approximately $2\frac{1}{4}$ million acres, 83 per cent of which is in farms, 28 per cent in crops and 38 per cent in pasture. Thirty-four per cent of the land in farms was in crops and 46 in pasture in 1929. In the entire areas there were 790,800 acres or 34 per cent of the land that was not used for either crops or pasture in 1929.

The soils in Area V are almost entirely of the Muskingum silt loam series. A hilly to very hilly condition exists uniformly over the area. In many places the degree of slope is too great to permit cultivation; however, many slopes are being cultivated on which soil loss from erosion is taking place at a very rapid rate. Many hillsides in the area were farmed until practically all of the surface soil washed away before they were seeded down to permanent meadows or pasture. Usually these hillsides were not removed from cultivation until they became unproductive and so badly washed that it was no longer possible to raise cultivated crops. Seeding down to meadows and pasture frequently checked erosion, healed in the gullies, and for a time provided satisfactory pasture. Continuous pasturing without the application of any lime or fertilizer has resulted in depleted pastures. The tendency has been for most of the farmers, in an effort to maintain farm income, to attempt to carry more livestock in recent years than the land will satisfactorily support. Such a policy is encouraging erosion.

The agriculture in Area V generally provided a satisfactory standard of living in the past as indicated by the farmsteads and general appearance of the country-side throughout most of the area. Land values in 1930 were 43, 21 and 6 per cent higher respectively in this area than they were in Areas I, II and III. Some land abandonment is occurring, badly eroded and worn-out fields and occasionally whole farms no longer being used. The results of past farming practices are only now becoming evident. Farmers throughout the area comment on the seriousness of the pasture condition. Between 1900 and 1930 the number of farms in the counties included in Area V declined as much as 20 to 25 per cent; land in farms declined 10 to 20 per cent and land in crops declined in some counties as much as 30 to 35 per cent.

To avoid a declining and unsatisfactory standard of living with the accompanying land abandonment, a program of readjustment in farming practices similar to that recommended for Area IV will be desirable and necessary.

In Area V more land is cropped and less land is pastured than in Area IV. Some reduction in the acreage of tilled crops and an increase in long time meadows, particularly in alfalfa-timothy mixtures, is desirable. Longer rotations with fields being plowed less frequently and strip farming on the steeper slopes should be followed. Land that is now in pasture on the very steep and eroding hillsides should be reforested and some of the land that is now being cropped on the steep hillsides should be shifted to pasture.

A pasture improvement program will be necessary on most farms to make it possible to carry sufficient livestock to provide a satisfactory farm income. Such a program will require the addition of lime and commercial fertilizers in varying amounts.

Scattered throughout the area are some farms that are too small to make the desired changes in cropping system, retire the land that is too steep to be farmed and continue to support a family. Where possible an increase in the size of farms or the elimination of these small units should be encouraged.

The accomplishment of such a program in this area and in Area IV is confronted with the difficulty of inducing private owners to make changes in long established farm practices and to spend a considerable sum of money for lime and fertilizer. An intensive educational program, perhaps accompanied by actual demonstration financed by public agencies, will probably be necessary.

One hundred three farmers located in the Salt Creek drainage basin in Muskingum County were contacted by Mr. E.H. Reed of the Federal Soil Erosion Service, in the late fall of 1934, to determine the income of these people. The farmers contacted were considered by him a fair cross-section of farms in the Salt Creek basin, which in turn was selected by the Federal Soil Erosion Service as being representative of a much larger part of eastern and southeastern Ohio. On this basis it is safe to assume that data obtained by Mr. Reed are applicable to a much larger part of the State and particularly so of that part which has been designated as land-use problem area V.

According to Reed's analysis of the 103 farms, gross cash receipts per farm amounted to $767, $716 from the sale of farm products, and $51 from non-farm sources. Cash farm expenses were $358 for the year 1934, and when change in inventory was taken into account and farm expenses were deducted from receipts, a farm income of $441 remained. After interest on the investment in real estate, livestock and equipment was deducted, a labor income of $219 per farm was obtained in 1934. In addition to the $219 labor income these families consumed home-produced products worth $289 during the year. Thus the total labor earnings amounted to $508. The average number of men employed per farm in producing this income was 1.7 men and the average size of family was 4.6 persons.

The average of the 20 most unproductive farms in terms of income, had gross cash receipts of $366, $351 from the sale of farm products and $15 from non-farm sources; farm expenses were $260 per farm. The average size of the farms in the low income group was 134 acres with 38 acres in crops in 1934.

Area VI

Area VI contains 697,517 acres in 5 counties in the extreme southwestern part of Ohio. Of this amount 75 per cent is in farms. Thirty-seven per cent of the land in farms is in crops, 44 per cent in pasture, and 10 per cent in woods. On the basis of all the land in the area only 27 per cent is in crops, and 33 per cent in pasture, leaving 275,853 acres or 40 per cent not used for either crops or pasture. This is due in part to the urban influence of Cincinnati.

The average size of farms in this area is 79 acres as compared with the State average of 98 acres per farm. A rather large unincorporated population, or 70 persons per square mile, lives in the area; however, only 42 per cent of these are rural farm people.

The topography varies from level to rolling and sometimes even quite steep and broken. Extending back from the Ohio River, in some instances to a distance of several miles, are gorge-like valleys where the streams flowing into the Ohio have cut through the high plateau that extends almost to the river.

Soils found in this area are the flood plain soils along the main streams and rivers; the hill group of soils that occupy the steep hillsides and valley walls; the soils that are located on the gentle rolling land; and the flat upland soils. The flood plain soils are generally productive, well drained, and easily tilled, and present no important land-use problems. The steep hillside soils where the streams have cut deep are formed from the native limestone and are generally rich in lime. This group will usually produce good tobacco, alfalfa, and bluegrass. Due to the heavy slopes, gully erosion develops quickly when these soils are subjected to frequent cropping and over-pasturing. Tobacco is the chief crop raised on the steep grades. The cropping generally followed includes only one cultivated crop (tobacco) in every five to seven years. This tends to hold erosion to a minimum if the land is seeded to a legume or a grass following the tobacco. In many instances no cover crop is seeded and the soil is allowed to erode until wild grass, weeds and locust bushes check it. The long rotation followed, if it may be called a rotation, yields in most cases only a very small farm income and in many instances does not control erosion. A desirable adjustment would be to include more pasture and mixed alfalfa-grass meadows. This will assist in checking erosion, improve the fertility, and make possible increased farm income by providing more and better feed for livestock.

The soils found above the steep grades on the slightly undulating to rolling lands are subject to both sheet and gully erosion. This group of soils covers the greatest part of Area VI and the Cincinnati soil type is the most prevalent of the group. A deficiency of organic matter in this group of soils contributes to erosion and is partially responsible for their low productivity. Their calcium content varies; some will produce satisfactory yields of legumes without liming but light applications will be necessary on most of them. Drainage is not a serious problem on this group. The chief problem is the cropping system followed by many farmers. Corn, being the important cultivated crop and a heavy feeder on soil plant food, is gradually wearing out these soils. Too little emphasis is placed on forage crops, which if properly handled, add to the organic matter rather than reduce it as corn does. The results of such a cropping system have been to lower the productivity of the soil and, by decreasing the organic matter through the use of a cultivated crop on these highly erosive slopes, to stimulate both sheet and gully erosion. Low farm income is characteristic of much of this area. The adjustment

needed on these soils is primarily a change in the cropping system to include less corn and more forage crops, particularly the legumes which in some cases will require the application of lime. By increasing the organic matter and reducing the acreage in cultivated crops the productivity will be increased and erosion reduced.

The flat upland soils constitute a relatively small percentage of the soils in this area. The predominant type in this group is the Clermont silt loam. These soils are difficult to drain, deficient in lime, and contain very little organic matter. A tillage problem replaces the erosion problem in this group. The cropping system usually followed is similar to that on the gently sloping and the rolling soils. The results of this heavy corn and light forage system differ here from the latter group of soils; erosion is non-existent but low productivity and increased tillage problems become more evident. The adjustments necessary to improve the conditions of this group of soils are more difficult to bring about than are those of the gentle slopes and rolling land. Poor drainage and low lime content make it difficult to incorporate more legumes in the rotation. Not only is it necessary to convince the farmer to change his cropping system, but drainage (primarily surface drainage) must be established and some lime must be added before a rotation can be put into practice that will add to the soil the organic matter necessary to improve its productivity. At the present time crop yields are low, few legumes are raised, many of the pastures are largely broom-sedge, and farm income is generally low.

It is the general opinion that extensive tile drainage systems would in most cases be uneconomical on these soils. More thorough surface drainage supplemented in some cases with tile ditches will generally suffice. A few sections that have no outlet for surface water will be aided by the construction of county or township ditches. Water tolerant plants such as soybeans, timothy, orchard grass, red top, alsike and mammoth clovers should be selected rather than such crops as alfalfa, potatoes, tobacco, and red clover.

Area VII

Area VII is an area of 639,357 acres in southwestern Ohio, comprising parts of Warren, Clermont, Clinton, Brown, and Highland counties. Ninety-one per cent of the land is in farms. Forty per cent of the land is in crops, 45 per cent in pasture and only 8 per cent in woods. On the basis of all land in the area 36 per cent is in crops and 41 per cent in pasture, leaving 144,839 acres or 23 per cent not used for agricultural purposes.

Area VII comprises the section of the state commonly known as the Clermont silt loam area. This area is a flat upland with occasional breaks along the streams. The characteristics of the Clermont silt loam soils, which are to be

found on the flat upland in the area, are poor drainage, high acidity, low organic matter, and difficult tillage. Most of these soils respond readily to good farming practices. Under existing farming practices corn is the principal cultivated crop and pasture constitutes the largest single use of the land. Corn being a heavy feeder on plant food and organic matter, it has reduced the productivity of the area to a low level. Low agricultural income, resulting from decreasing crop yield and poor pasture, is the principal problem in the area. Up to 1930 the decline in land in farms was small; however, the decrease in crop acreage between 1900 and 1930 has ranged from 15 to 30 per cent. There has also been some reduction in the number of farms and a 21 per cent decrease in unincorporated population in the 20 years following 1910. The proximity of this area to a large metropolitan area (Cincinnati) provides a market that will justify the expending of effort to maintain this area in agriculture.

A reduction in the acreage planted to corn and an increase in forage crops are desirable if the productivity of the soil is to be improved. To accomplish these adjustments drainage must be improved on many of the farms. It is doubtful due to the soil type, if thorough tile drainage will be economical. In most cases systems of surface drainage and in some cases some tile drains to assist the surface drain will be sufficient. General surface drainage can be facilitated in a few parts of the area, where no adequate outlets are available, by county or township ditches. The utilization of water tolerant plants in the cropping system such as soybeans, timothy, orchard grass, red top, alsike and mammoth clovers should be encouraged. By using a greater acreage of forage crops, reducing the acreage of corn, returning to the soil large quantities of manure, plowing under green crops, and adding some lime in each rotation, the soil conditions may be sufficiently improved to provide a farm income that will make possible a satisfactory standard of living in this area.

Area VIII

In Paulding, Defiance and Putnam counties in northwestern Ohio is a block of land containing approximately one-half million acres in which drainage presents a problem. A very flat topography exists in this section of the State and on much of the land the degree of slope is so small that little or no surface drainage exists. Paulding clay,(10) the principal soil in this area, is one of the heaviest and most difficult soils to handle in the State. It is very sticky when wet and must be cultivated when the soil moisture is neither too great nor too small.

The northwestern part of Ohio was the last section of the State to be settled. It reached its maximum population around the year 1900, or 20 to 30 years later than most of the other strictly rural areas of the State. From 1900 to 1930 the

(10) Paulding clay is a very dark gray soil, mottled below 8 inches, is level and very poorly drained.

population of Area VIII decreased 30 per cent. The actual number of farms declined materially in this period but there was little or no decrease in the amount of land in farms. This decline in number of farms was offset by a tendency for the average size of farm to increase. Ninety per cent of all the land in the area was in farms in 1930, 62 per cent in crops and 21 per cent in pasture. Nine per cent of all the land in farms was not used for either crops or pasture. Crop land increased about 20 per cent in the area between 1900 and 1930.

Mr. E.P. Reed, who was soils extension specialist in northwestern Ohio for 12 years, reports that in Area VIII the soils have all become increasingly difficult to drain and that drains installed and spaced from 2 to 4 rods apart afforded ample drainage at one time but during recent years with the depletion of organic matter in these soils, drainage on many farms has become inadequate. In some cases the placing of an additional string of tile between the original laterals has solved the problem, at least for the present. Doubling the drainage system on many of these farms is of questionable economy when farm prices are considered. Mr. Reed suggests the following program as a possible means of improving drainage conditions without greatly expanding the present tile drainage system. By the use of a definite crop rotation which includes the frequent growing of deep-rooted legumes (such as alfalfa and sweet clover) and plowing under of large quantities of organic matter, drainage conditions may be materially improved. Increasing the amount of livestock, which calls for more forage crops and a larger acreage of pasture, will not only assist in improving the condition of the soil but will reduce farm costs by requiring less frequent plowing.

The eastern part of Area VIII contains the heavier soils. The increased problem on these soils is reflected in a 6% smaller proportion of the land in farms and 7% less in crops. Land values were about $10 per acre less in 1930. Twenty two per cent of the land was tax delinquent in the eastern part as compared with 16 per cent in the western part of the area.

The light-colored soils along the streams in the eastern part of Area VIII are better suited to permanent pasture and forests than to arable farming.

Area IX

In central northern Trumbull County and in central and south west Ashtabula County is an area in which the soils are acid, cold, wet, and poorly adapted to arable farming. In 1930 71 per cent of this area was in farms and 36 per cent of the land in farms was in crops, 50 per cent in pasture and 22 per cent in woods. On the basis of all the land in the area only 60 per cent was used for either crops or pasture. In 1932, 29 per cent of the land outside of incorporated places was tax delinquent.

The topography is level to gently undulating and in much of the area the slope is so small that poor surface drainage exists. Trumbull silty clay loam(11) and Mahoning silty clay loam(12) are the predominant soil types in this area. Drainage is the important problem in these soils and without thorough drainage crop yields are normally low. Timothy meadows yield fairly well and the pastures are usually productive. Tillage is difficult because the period in which these soils can be worked most advantageously is limited; when worked too wet the soil becomes cloddy and when too dry it becomes hard to plow and cultivate.

Due to the topography and lack of good outlets for the water, together with soils of rather low productivity it is doubtful if the installation of effective drainage systems would be economical. At present much of the land in the flat lowland along Mosquito Creek, which runs through part of the area, is in brush and woods. A considerable portion of this, together with the least productive and most difficult to drain portions of adjacent land, should probably be removed from agricultural use. Public acquisition of this land for use as a game preserve may well be considered. On the remainder of the area systems of farming should be encouraged that will make possible the utilization of more pasture and timothy hay. Limited areas that can be most readily drained may be cropped to provide some grain for feed purposes.

Area X

In Lucas, Fulton and Henry Counties in northwestern Ohio there is a block of land containing approximately 111,637 acres. Only a little over one-half of this area was in farms in 1930, and of that which was in farms, 57 per cent was in crops, 25 per cent in pasture and 10 per cent in woods. Crops and pasture utilized only 47 per cent of the entire area.

The topography of the area varies from gently rolling to rolling or dune-like. There are two principal soil types in the area--Newton fine sand and Plainfield fine sand. The former is located on the low land and occurs in irregular areas varying in size from a few acres to 40 acres. The surface is level, drainage is usually poor, and crops suffer in wet years. If satisfactory outlets can be secured this soil can be rather easily drained. The Newton fine sand is acid and together with the poor drainage is very unfavorable for clover. Soils specialists generally class it as of low agricultural value. The upland or the Plainfield fine sand is a brown or

(11) Trumbull silty clay loam is gray and when dry almost white, has an average depth of 8 inches, both the sub-surface and subsoil are more or less plastic and the heavy character of the subsoil makes drainage difficult.

(12) Mahoning silty clay loam consists of a grayish-brown heavy silty clay loam underlain at about 8 inches by a mottled yellow and gray heavy silty clay loam. Poor under drainage is common because of the heavy clay subsoil.

yellowish brown, loose, fine sand, low in organic matter. This soil type occurs in areas ranging from 1 to 80 acres in extent. The water-holding capacity of the soil is low and in years of subnormal precipitation crops suffer seriously. The addition of lime is necessary for the production of clover. Between the Plainfield and the Newton is a mixed soil type which is usually poorly drained; is also very unproductive and generally considered the least valuable of the three.

The farms in this problem area are the smallest of any of the problem areas designated in this report, averaging only 63 acres in 1930. This area, being relatively near to Toledo and other industrial cities and towns has been exploited by salesmen who have preyed on inexperienced urban families interested in establishing part-time or subsistence farms. Much disappointment and grief has resulted from the exaggerated pictures painted by real estate salesmen in this area. Not all of the participants failed, some were fortunate enough to have secured tracts of the better land in the area. Success at part-time and subsistence farming is difficult to attain even under the most optimum conditions. In November, 1934, 39 per cent of the people living in the open country in this area were on relief and in 1932 8 per cent of the land outside of incorporated places was tax delinquent.

Very careful surveys of the area should be made by soils specialists and only the best soils along good roads should be used for agriculture. In view of the low agricultural productivity of much of this area and the great need of many metropolitan centers for recreation facilities, recreation in the form of forest parks and game preserves is the most desirable use of a high percentage of this area. Work in the parks and the supplying of services to vacationists will provide employment for several part-time farm families that can be or are now established on the best land.

The high land value ($117 per acre in 1930), caused largely by its proximity to the Toledo Metropolitan Area and high pressure real estate development projects rather than by its value as farm land, probably precludes it from a federal forestry or submarginal land-acquisition project. The acquisition of a large part of this area may well be considered by the Metropolitan Park Board of Toledo and surrounding urban communities.

The Non-problem Area of Ohio

The remainder of the State, or what has been designated as the non-problem area, is not without land-use problems. Low farm income has been a pressing agricultural problem in all parts of the State for many years. Most farms in this area can be made to yield a greater income and at the same time maintain the productivity of the soil for future use.

The problem is primarily one of management which is a human or man-made factor. In contrast to this the areas that are designated as problem areas have in addition to a management problem the problems which arise out of adverse land conditions and the results of misuse of the land by past generations of farmers.

That portion which has been designated as a non-problem area comprises slightly less than two-thirds of the total land in the state. Eighty five per cent of all the land in the non-problem area was in farms and 95 per cent of all the land in farms was used for crop or pasture in 1929. Tax delinquency in parts of the non-problem area, particularly in the northeastern part, was high, whereas in the central and western part of the state a relatively small percentage of the land was tax delinquent in 1932. Seven per cent of the open-country population was receiving direct relief from public agencies on November 1, 1934 as compared with 13 per cent in the problem areas.

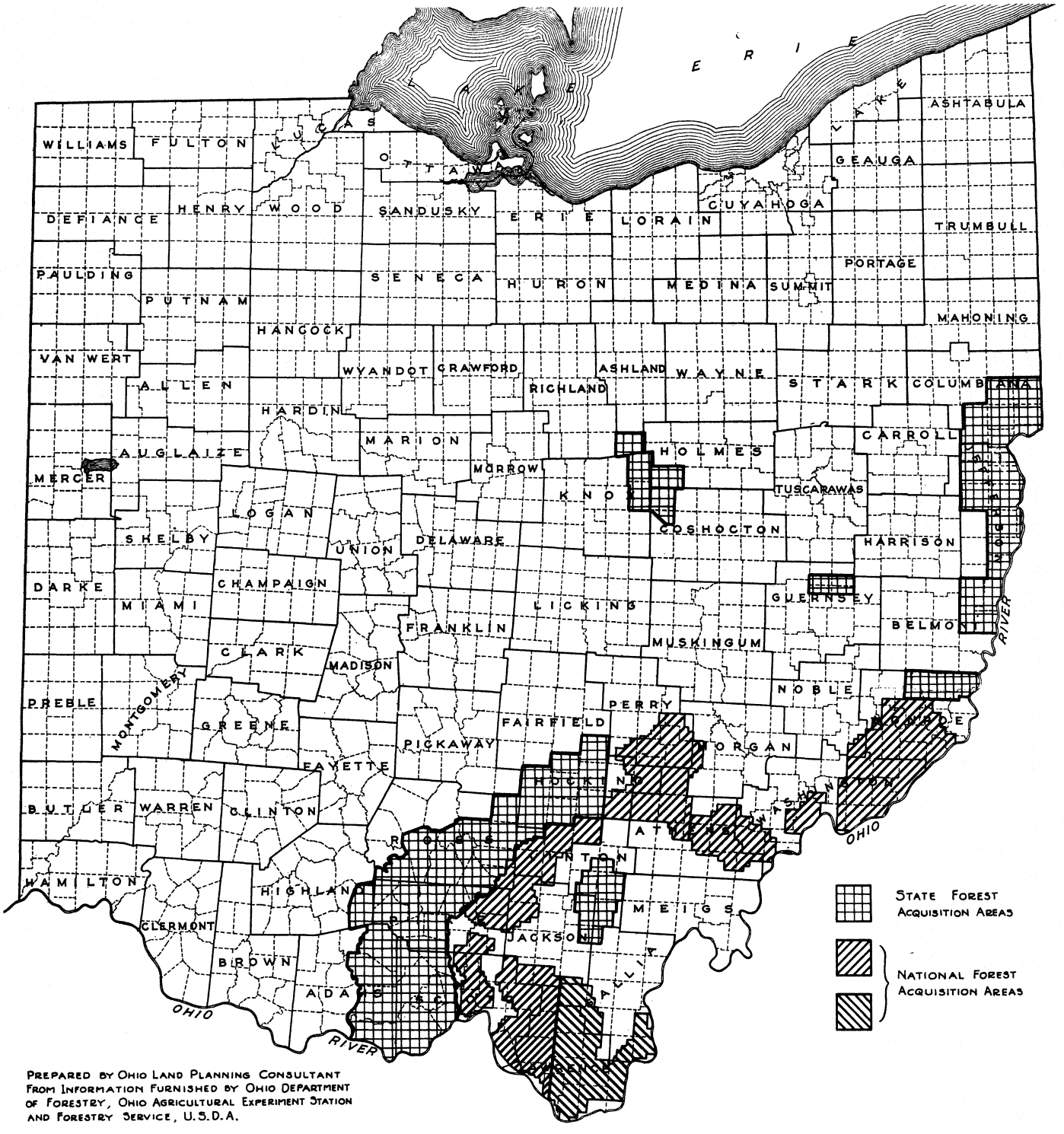
State and National Forest Acquisition Areas in Ohio

Areas in which it seems desirable to acquire land for forest uses was determined by field surveys, census data and general knowledge of the territory by the federal and state forestry services (See map, page 21). The area outlined contained approximately three million acres, about one-half of which was allotted to the federal forestry service and one-half to the state forestry service. The territory in which the federal service will concentrate its activities is east of the Scioto River.

The federal forestry service has established a state headquarters in Columbus, Ohio, and has placed Mr. Byron L. Groesbeck in charge. Five purchase units have been established and forest rangers have been placed in charge with offices in Athens, Portsmouth, Ironton, Marietta and Jackson, Ohio. The federal service contemplates the acquisition of about 80 per cent or 1,200,000 acres of the area allotted to them.

The state forestry service under the supervision of Mr. Edmund Secrest owns at the present time approximately 65,000 acres of forest and forest-park land in Ohio. The territory in which Mr. Secrest plans to concentrate future purchases of land for forest uses is broken up into six different areas. The largest of these includes parts of Scioto, Adams, Highland, Pike, Ross, Vinton and Hocking Counties; another large area is in eastern Ohio and includes parts of Belmont, Jefferson and Columbiana Counties. The furtherance of the present state forest program which seems both desirable and worthy of public support is dependent upon Legislative appropriations.

PROPOSED STATE AND NATIONAL FOREST ACQUISITION AREAS IN OHIO, FEB. 1935



PREPARED BY OHIO LAND PLANNING CONSULTANT
FROM INFORMATION FURNISHED BY OHIO DEPARTMENT OF FORESTRY, OHIO AGRICULTURAL EXPERIMENT STATION AND FORESTRY SERVICE, U.S.D.A.

Table 1.- Statistical Analysis of the Major Land-Use Problem Areas

	Land in Area (acres)	Land in Farms (acres)	Number of Farms	Average Size of Farms (acres)	1930 Census Value of Farm Land and Buildings Total (dollars)	Per Acre (dollars)
AREA I	1,958,133	1,282,617	10,830	118	45,089,255	35
AREA II	1,065,361	887,731	10,228	87	36,498,312	41
AREA III	504,528	319,454	3,519	91	14,912,431	47
AREA IV	1,893,085	1,629,036	15,651	104	64,515,792	40
AREA V	2,342,322	1,941,245	17,998	108	97,320,763	50
AREA VI	697,517	522,385	6,608	79	52,839,031	101
AREA VII	639,357	580,020	5,914	98	28,749,274	50
AREA VIII	506,886	458,061	3,702	124	35,705,527	78
AREA IX	84,103	59,332	625	95	3,114,280	52
AREA X	111,637	63,614	1,010	63	7,419,200	117
TOTAL PROBLEM AREA	9,802,929	7,743,495	76,085	102	386,163,865	50
TOTAL NON-PROBLEM AREA	16,270,671	13,770,564	143,211	96	1,306,866,851	95
TOTAL STATE	26,073,600	21,514,059	219,296	98	1,693,030,716	79

Table 1.- Statistical Analysis of the Major Land-Use Problem Areas
(Continued)

	On the Basis of Land in Farms							
	Crops		Pasture		Not used for either crops or pasture		Woods	
	Acres	Per cent	Acres	Per cent	Acres	Per cent	Acres	Per cent
AREA I	311,100	24	579,481	45	392,036	31	404,429	32
AREA II	212,670	24	459,710	52	215,351	24	175,240	20
AREA III	83,758	26	165,349	52	70,347	22	53,094	17
AREA IV	412,195	25	992,886	61	223,955	14	208,939	13
AREA V	652,786	34	898,736	46	389,723	20	277,504	14
AREA VI	190,899	37	230,765	44	100,721	19	53,845	10
AREA VII	231,406	40	263,112	45	85,502	15	45,833	8
AREA VIII	312,855	68	106,262	23	38,944	9	46,234	10
AREA IX	21,251	36	29,537	50	8,544	14	12,823	22
AREA X	36,484	57	15,982	25	11,148	18	6,633	10
TOTAL PROBLEM AREA	2,465,404	32	3,741,820	48	1,536,271	20	1,284,574	17
TOTAL NON-PROBLEM AREA	8,803,991	64	4,295,724	31	670,849	5	1,489,055	11
TOTAL STATE	11,269,395	53	8,037,544	37	2,207,120	10	2,773,629	13

Table 1.- Statistical Analysis of the Major Land-Use Problem Areas
(Continued)

	On the Basis of All Land in Area							
	Farms		Crops		Pasture		Not used for either crops or pasture	
	Acres	Per cent	Acres	Per cent	Acres	Per cent	Acres	Per cent
AREA I	1,282,617	66	311,100	16	579,481	30	1,067,552	54
AREA II	887,731	83	212,670	20	459,710	43	392,981	37
AREA III	319,454	63	83,758	17	165,349	33	255,421	50
AREA IV	1,629,036	86	412,195	22	992,886	52	488,004	26
AREA V	1,941,245	83	652,786	28	898,736	38	790,800	34
AREA VI	522,385	75	190,899	27	230,765	33	275,853	40
AREA VII	580,020	91	231,406	36	263,112	41	144,839	23
AREA VIII	458,061	90	312,855	62	106,262	21	87,769	17
AREA IX	59,332	71	21,251	25	29,537	35	33,315	40
AREA X	63,614	57	36,484	33	15,982	14	59,171	53
TOTAL PROBLEM AREA	7,743,495	79	2,465,404	25	3,741,820	38	3,595,705	37
TOTAL NON-PROBLEM AREA	13,770,564	85	8,803,991	54	4,295,724	27	3,170,956	19
TOTAL STATE	21,514,059	83	11,269,395	43	8,037,544	31	6,766,661	26

Table 1.- Statistical Analysis of the Major Land-Use Problem Areas
(Continued)

	Land Outside of Incorporated Places Tax Delinquent in 1932		Number of Open-Country Persons on Relief November 1, 1934	
	Acres	Per cent	Persons	Per cent
AREA I	629,866	32	24,171	23
AREA II	291,806	27	10,982	16
AREA III	156,592	31	9,178	19
AREA IV	373,746	20	12,292	10
AREA V	433,234	29	10,560	9
AREA VI	81,615	12	1,633	6
AREA VII	112,691	18	2,414	9
AREA VIII	98,041	19	1,572	8
AREA IX	24,127	29	229	6
AREA X	8,985	8	4,323	39
TOTAL PROBLEM AREA	2,210,703	23	77,354	13
TOTAL NON-PROBLEM AREA	3,032,791	23	68,729	7
TOTAL STATE	5,243,494	23	146,083	9

Table 1-Statistical Analysis of the Major Land-Use Problem Areas
(Concluded)

	Incorporated Population		Unincorporated Population			Rural Farm Population	
	1910	1930	1910	1930	Per Square Mile 1930	1930	Per cent of Unincorporated
AREA I	83,689	115,319	104,991	104,144	35	58,844	57
AREA II	35,878	39,976	80,017	67,165	41	46,490	69
AREA III	70,012	79,955	53,284	48,288	62	16,600	34
AREA IV	88,591	127,924	141,560	125,753	43	67,613	54
AREA V	162,019	216,680	125,751	115,969	32	75,704	65
AREA VI	59,109	108,208	78,761	69,920	70	29,602	42
AREA VII	12,181	11,824	34,482	27,171	27	23,150	85
AREA VIII	17,253	17,108	29,061	19,043	25	17,093	90
AREA IX	-	-	3,615	3,634	27	2,770	76
AREA X	1,235	3,068	6,724	11,109	70	5,806	52
TOTAL PROBLEM AREA	529,967	720,062	658,246	592,196	39	343,672	58
TOTAL NON-PROBLEM AREA	2,135,176	3,787,309	1,443,732	1,547,130	60	660,616	43
TOTAL STATE	2,665,143	4,507,371	2,101,978	2,139,326	53	1,004,288	47

PART II

LAND UTILIZATION IN OHIO

Physical Characteristics Influencing Land-Use in Ohio

Climate

The average annual precipitation in Ohio from 1854 to 1933 was 38.74 inches. The normal distribution of this rainfall is quite uniform over the state, varying from 33 inches in a narrow strip along Lake Erie to 42 inches in small areas in the southern part and the northeastern part of the state. The average monthly precipitation varies from 2.6 inches to 4.0 inches, the highest normally coming in the months of May, June and July. Thus in no area of the state is precipitation a major factor limiting the profitable use of land for agricultural purposes.

The average annual temperature of Ohio is 50.70°, with July as the warmest month with an average of 73.1° and January the coldest with an average of 27.7°. Each month, November to March, has zero temperature and every month except July and August has temperature as low as freezing some years. Variations in temperature over the state are not sufficient to produce any marked effect upon the distribution of the principal farm crops, except oats, which are practically confined to the northern half of the state. Temperature and soil conditions restrict sugar beets to the northwestern part of the state. Serious loss sometimes results from the winter killing of wheat, due to adverse weather conditions.

The average length of growing season is about 168 days, varying from slightly less than 150 days in the eastern third of northeastern Ohio to over 192 days in a narrow strip along Lake Erie. In general the northern half of the state has a growing season of from 150 to 164 days and the southern one-half from 164 to 178 days. While length of growing season may cause some variation in the type of farming in various areas of the state, it is not an important factor in determining the profitable agricultural use of any area. The average amount of possible sunshine for the state is 52 per cent.

Altitude

Practically the entire area of the state lies between 500 and 1,500 feet above sea level and considerably more than one half of the state lies between the 500 and 1,000 foot contours.

The level of Lake Erie on the north boundary of the state is 573 feet above sea level. Low water level on the Ohio River at the point where the Miami joins the Ohio in Hamilton County is 428 feet above sea level, and at the point where the Ohio first touches the state (Columbiana County) the elevation is 643 feet. In Logan County is located the highest land elevation in the state, 1540 feet above sea level.

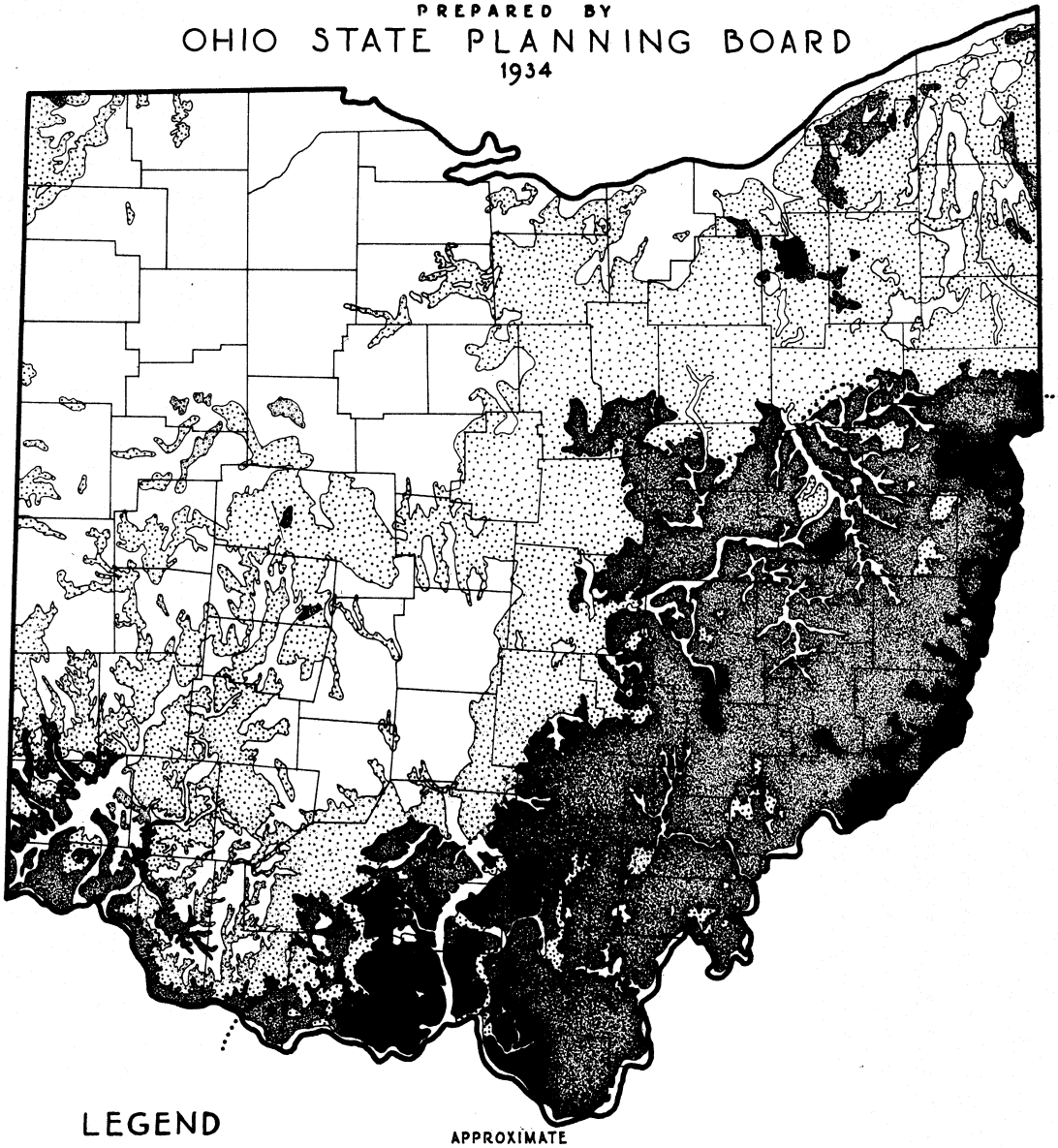
Topography

The characteristic topography of three-fourths of the State is that of a glaciated plain of slight relief. Practically all of this land is capable of cultivation. The most hilly part of Ohio is the unglaciated section of the Allegheny Plateau which constitutes the southeastern quarter of the state. Here large areas of the land are not adapted to arable farming because of the difficulty of using modern tillage machinery, the rapid run-off of the surface water and consequent erosion. Map 3 shows a general land classification of Ohio on the basis of irregularity of surface.

TOPOGRAPHIC CLASSIFICATION OF THE STATE OF OHIO

SCALE OF MILES

PREPARED BY
OHIO STATE PLANNING BOARD
1934



LEGEND

	APPROXIMATE RELATIVE RELIEF
LEVEL TO GENTLY UNDULATING (ALL CULTIVABLE)	0 TO 100 FEET
GENTLY TO HEAVILY ROLLING (PRACTICALLY ALL CULTIVABLE)	100 TO 300 FEET
HILLY TO VERY HILLY (CULTIVABLE AND UNCULTIVABLE)	300 TO 500 FEET
VERY STEEP AND BROKEN (PRACTICALLY ALL UNCULTIVABLE)	500 TO 800 FEET
GLACIAL BOUNDARY	

Soil

by Dr.G.W. Conrey(1)

The soils of Ohio can be grouped on the basis of origin into seven major soil areas. (See map page 5) Within each area soils with different characteristics and agricultural value have developed as a result of variations in topography and drainage, and in some cases variations in parent material.

1 A. Glacial limestone soils. These soils have been developed from calcareous glacial drift and include some of the most fertile lands in the state. The light colored soils have been leached of lime to a depth of 24 to 36 inches, and are commonly slightly acid in reaction in the surface soil. Those with fair to good natural drainage (Bellefontaine silt loam, Miami silt loam and silty clay loam) are very good grain soils. The associated gray soil with poor natural drainage (Crosby silt loam) is of only fair agricultural value. The dark colored soils (Brookston and Clyde silty clay loam), which naturally are very poorly drained, on being adequately drained artificially, include some of the best corn lands of the state.

2 A. Old Glacial limestone soils. This soil region includes glacial limestone soils derived from very old calcareous glacial drift which has been leached of lime to a depth of 8 or 10 feet. Because of this extreme leaching these soils are all very acid in reaction and relatively low in natural fertility. Those with fair to good natural drainage (Cincinnati and Rossmoyne silt loam) are of fair agricultural value, whereas the very poorly drained gray soil (Clermont silt loam) would be ranked as low in value.

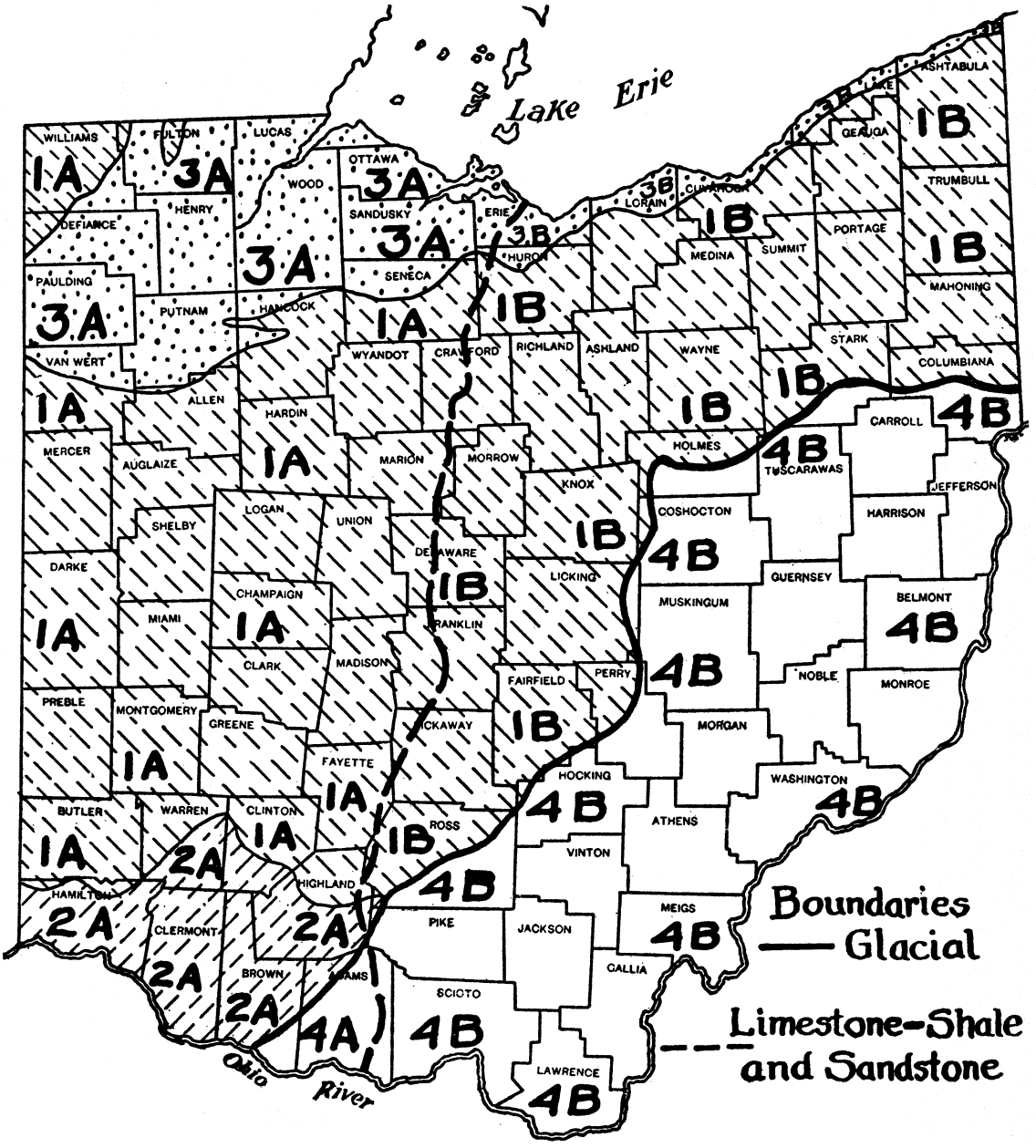
1 B. Glacial sandstone and shale soils. These soils have been derived from glacial drift made up largely of non-calcareous sandstone and shale. Where sandstone predominates the subsoils are rather open and porous, making it possible to drain the wet areas by tiling fairly easily. The soils with fair to good natural drainage (Wooster and Canfield silt loam) are some of the best grain soils in the state and are very good for potatoes. The associated poorly drained soils (Volusia and Trumbull silt loam) are of fair agricultural value only. All of these soils are acid in reaction, and hence must be limed before good stands of legumes such as alfalfa or red clover can be secured.

Where shale predominates in the soil material the subsoils are very heavy and impervious and adequate artificial drainage is difficult to secure. Where there is fair natural drainage (Ellsworth silt loam) those soils have fair agricultural value, but in the areas with poor to very poor drainage (Mahoning and Trumbull silty clay loam) the soils would be ranked as poor. Gray soils such as Trumbull silty clay loam are probably best adapted to permanent meadow or pasture.

3 A. Lacustrine limestone soils. This area includes the great Lake plain area of northwestern Ohio. Sandy areas which are old beach deposits are well adapted to truck crops and fruit. Some areas of very deep sand, such as the "Oak Openings" area west

(1) Chief of the Ohio soil survey of the Ohio Agricultural Experiment Station.

PRINCIPAL SOIL AREAS OF OHIO



Soils

1 A. Glacial Limestone Soils.
1 B. Glacial Sandstone and Shale Soils.
2 A. Old Glacial Limestone Soils.
3 A. Lacustrine Limestone Soils.
3 B. Lacustrine Sandstone and Shale Soils.
4 A. Residual Limestone Soils.
4 B. Residual Sandstone and Shale Soils.

of Toledo tend to be rather droughty. By far the larger part of this region is occupied by level areas of dark colored, naturally poorly drained clay soils (Brookston, Paulding clay, Toledo silty clay). With adequate drainage these heavy soils are very good for corn, sugar beets, clover and alfalfa and similar crops. The associated heavy light colored soils (Nappanee and Fulton silty clay loam) are of only fair agricultural value.

3 B. Lacustrine sandstone and shale soils. The narrow belt of lake plain soils in northeastern Ohio includes much the same range in texture as in northwestern Ohio. Being derived primarily from sandstone and shale material the soils are naturally acid in reaction. The area of dark colored heavy soils is somewhat limited. Here the sandy soils are well adapted to truck crops and fruit. The heavy light colored soils are of fair agricultural value only.

4 A. Residual limestone and shale soils. This area in Adams and adjoining counties includes residual soils from limestone or from limestone and shale. A considerable proportion of the area has a very steep topography. These sloping lands (Fairmount, Eden and Heitt silty clay loam) which are well supplied with lime are excellent for pasture, and for legumes like alfalfa. In spite of the steep topography, tobacco is produced successfully on these areas. The hazard of soil erosion is very great on these steep lands. The ridge soils and those occupying the smoother areas in the upland range from well drained to poorly drained. The well drained residual limestone soils (Hagerstown and Bratton silt loam) can be ranked as good for grain and for tobacco.

4 B. Residual sandstone and shale soils. This area in southeastern Ohio includes the hill lands of the state. Here the soils are residual from various types of bed rock. Those derived from sandstone and shale (Muskingum loam and silt loam) are acid in reaction and of only fair fertility. The residual limestone soils (Brooke silty clay loam) are well supplied with lime, and support an excellent bluegrass cover when in pasture. The red Upshur clay is derived from red clay shales. It is very heavy in texture and hence difficult to work. Because of the interstratified character of the formations, mixed soils have been recognized in this region. The Westmoreland soils include areas of Muskingum and Brooke, the Meigs mixed areas of Muskingum and Upshur, and the Belmont areas of Muskingum, Upshur and Brooke.

Because of the rolling topography of much of the land surface, the use of the land is closely related to slope. The smoother areas can be utilized for general farming with intertilled crops, the rolling areas for grain, meadow, and pasture, whereas the steep slopes are adapted only to pasture and for forestry.

Terrace and flood plain areas, while of limited extent, include some of the desirable agricultural lands in the region. These range from excellent to poor depending on drainage and reaction. The first bottom areas are subject to occasional inundation during times of flood with some damage to crops.

Erosion in Ohio

by A.H. Paschall[2]

Erosion is affected by the slope of the land surface, the soil type, and the type and condition of the cover. Slope plays an important part in determining the amount of erosion; hence, an erosion map based on the topographic condition will give a fair representation of the state. Land cover will, of course, modify the amount of erosion occurring on different slopes.

In the areas of level to gently undulating topography (see map, page 3) soil erosion is not a serious problem. In these areas only slight sheet erosion exists, there is no gullying and less than 25 per cent of the surface soil has been removed. The erosion that does exist is confined to the slopes of the slightly elevated knolls and ridges in the crop land and to the escarpments along stream valleys. All land in these areas can be cropped without serious loss from erosion.

In the areas of gently to heavily rolling topography (see map, page 3) moderate sheet erosion with occasional gullies exists and between 25 and 75 per cent of the surface soil has been removed from the crop land. This loss occurs mainly on the slopes with the eroded soil being caught on the lowlands between knolls and ridges. Slopes along the stream valleys show considerable loss of soil when cropped. Control measures are needed on the steeper slopes.

In the areas of hilly to very hilly topography (see map, page 3) severe sheet erosion and occasional and severe gullying exist over a large percentage of this territory. Crop lands which do not receive the best of management suffer a loss of 75 to 100 per cent of the surface soil and frequently lose some subsoil. The severity of the gullying depends on the type of soil. Those soils derived from sandstone and shale largely (Muskingum group) suffer from occasional gullies. Those derived from shale and clay shale (Meigs and Upshur) show severe gullying. Soils containing some limestone in the parent material (Westmoreland and Belmont) have severe gullying where they have been improperly handled.

In the areas with very steep and broken topography both severe sheet erosion and severe gullying exist. These areas are characterized by a loss of nearly 100 per cent of the top soil and severe gullying on the crop land. However, there is much of the steepest land in this area that has not been cleared and cropped. This uncleared land which is kept in woods with a good cover and has not been pastured shows but slight sheet erosion and no gullying except along logging trails.

(2) Chief soil expert, Salt Creek Soil Erosion Service.

Mineral Resources
(Ohio State Planning Board Report, Aug., 1934)

Ohio is and will continue to be an important mineral state (see map, page 9), ranking sixth in the United States in the value of its mineral production. According to the United States Bureau of Mines, the value of such production for Ohio in 1931 was $130,328,000.

In order of importance, Ohio's principal minerals are clay, coal, natural gas, oil, stone, sand and gravel, and salt. Limestones, glacial clays, gypsum, and sand and gravel deposits are segregated in western parts; oil and gas fields in northwestern and eastern sections; coal fields, fire clays and sandstones in the eastern and southeastern areas.

The early mineral industries of economic importance in pioneer days were iron, salt, coal, and potteries. Iron smelting has long disappeared due to the competition of the high-grade Lake Superior ores. The salt industry has become almost of negligible import due to the importation of cheaper salt principally from Michigan and New York. Coal production is still important but has been on the decline since 1918. The ceramic industry, which is the outgrowth of the early potteries, has thrived because of the abundance of high quality native clays, excellent shipping facilites and proximity of markets.

GENERALIZED LOCATIONS OF MINERAL DEPOSITS

IN THE

STATE OF OHIO

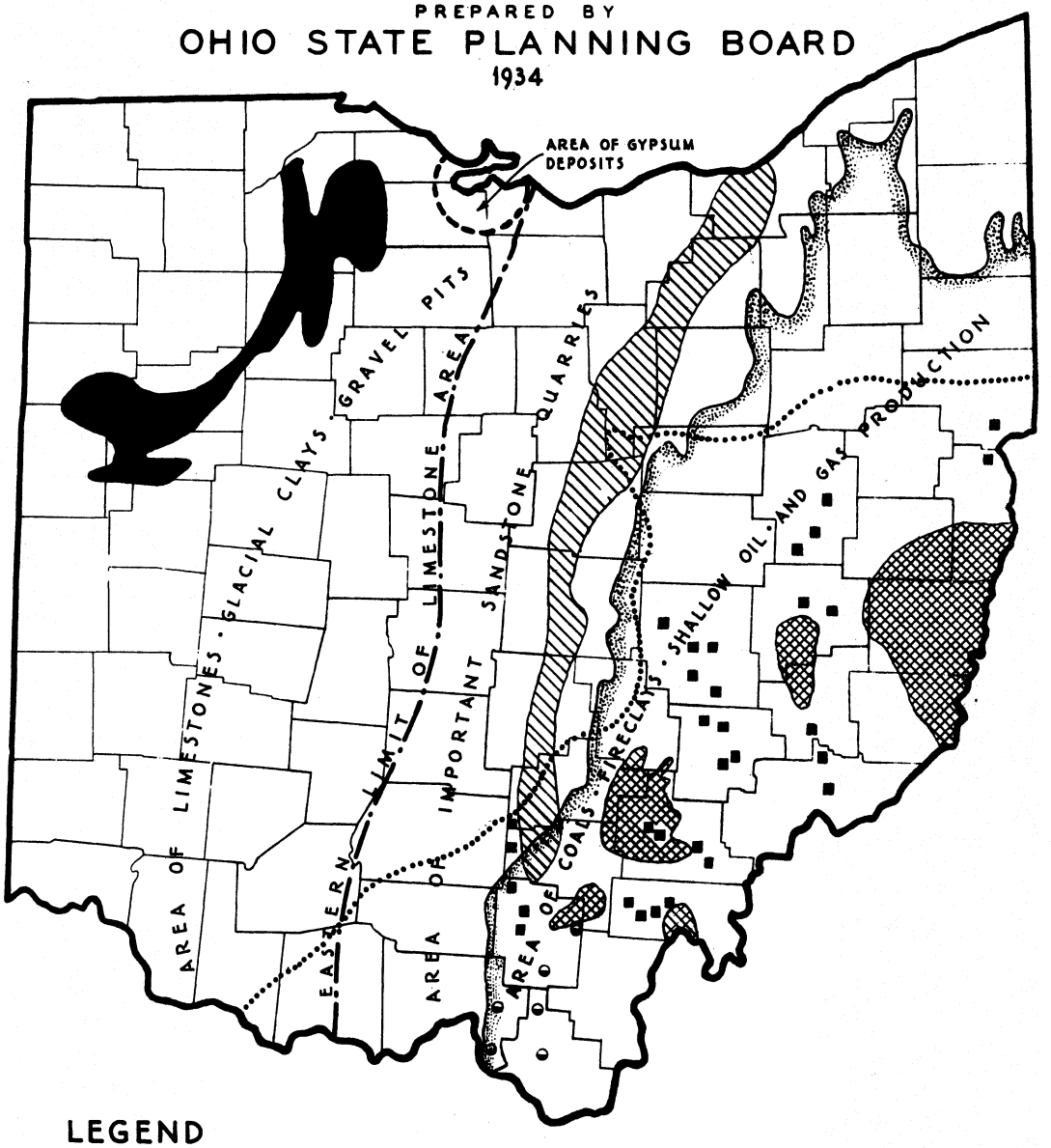
SCALE OF MILES

0 20 40 60 90

PREPARED BY

OHIO STATE PLANNING BOARD

1934



LEGEND

- ■ PIONEER SALT WORKS
- ⊖ PIONEER IRON SMELTERS
- PRINCIPAL COAL FIELDS
- WESTERN LIMIT OF COAL • FIRECLAYS • ETC.
- CLINTON GAS AND OIL FIELDS
- TRENTON GAS AND OIL FIELDS
- GLACIAL BOUNDARY

Primary Vegetation Areas in Ohio

by Dr. E.N. Transeau and Dr. H.C. Sampson(3)

An attempt is made on the map on page 11 to show the distribution of the primary vegetation in Ohio at the time of settlement. The map is based in part on the original surveyors' records and in part on recent field studies. Only the major features of the vegetation can be shown on a one-color map of this size. Less than half of the counties have been studied in detail. There are doubtless other prairie openings of which we have no record.

The swamp forest includes several phases: willow-cottonwood-sycamore; elm-ash-maple; bur oak-swamp white oak-hickory; and red oak-linden.

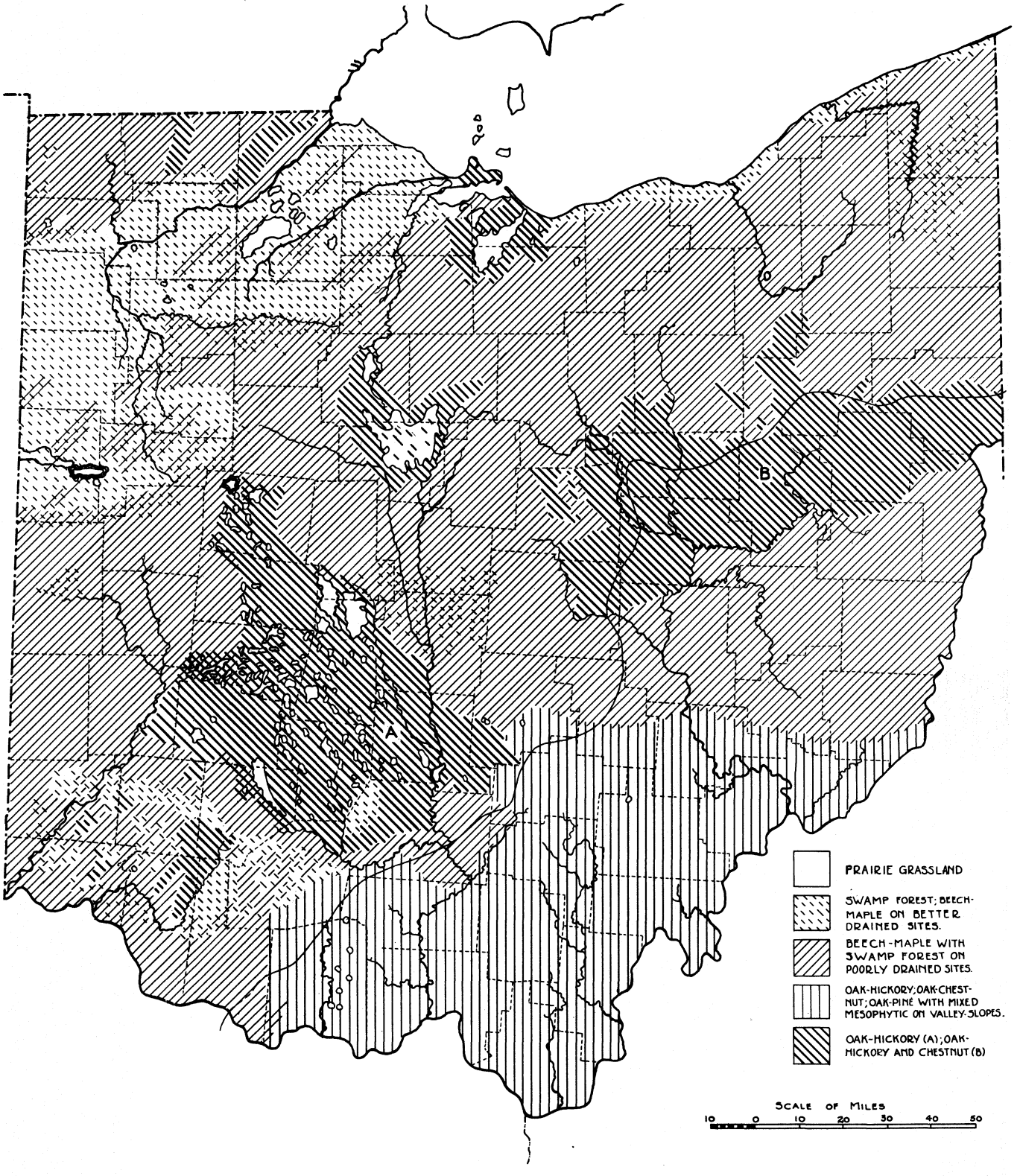
The area of beech-maple forest includes variations from nearly pure beech (wet beech type) to areas dominated by sugar maple and oak. The southwestern counties contain numerous areas of oak-maple.

The oak-hickory forest surrounding the prairie openings (A) includes many areas of bur oak growing on areas of prehistoric prairie, and toward the outer border it includes areas dominated by oak-maple and in places swamp forest. In the east central part of the state (B) is a peninsula of oak-hickory-chestnut that characterizes a region of marked "relative relief" the northern border being in part determined by gravel moraines. The oak-hickory areas near the Michigan boundary are "oak openings" with a high percentage of black oak and with many prairie plants in the under-growth. The oak openings are located on glacial lake beaches and sand dunes.

The southeastern counties form a dissected plateau with much of the land in slopes. Here occur forests of oak-hickory, oak-chestnut, and oak-pine, frequently with mixed mesophytic or beech-maple on the north and lower valley slopes and in coves. The mixed mesophytic forest is made up of many species about equally numerous, including beech, tulip, maple, magnolia, ash, linden, buckeye, red and white oak, hickory, chestnut, butternut and sometimes hemlock.

(3) Department of Botany, Ohio State University.

PRIMARY VEGETATION AREAS OF OHIO
PRELIMINARY SURVEY



PREPARED BY
E. N. TRANSEAU AND H. C. SAMPSON, 1934.

Population

Population Redistribution in Ohio, 1880-1930

by Guy-Harold Smith(4)

Real or imagined inequalities in opportunity are the dynamic factors in population movements. An inherent restlessness requiring a new environment sets many seeking a new home. War, disease and persecution drive before them hordes who make haste to escape death or unhappiness. Whatever the causes of migration, the fabric of our civilization is constantly changing in pattern, as individuals or groups change their place of residence in response to a multiplicity of causes. From the time of settlement down to the present the population of the United States has been increasing in numbers, concentrating in urban communities, and moving freely from one section of the country to another. Ohio, near the center of industrial America has participated in the population shifts which are characteristic of the United States.

Population movements in the past in the United States have been due to the individual initiative of the people who sought to improve their living conditions. While there were cheap lands available along the westward moving frontier migration along the parallels was a dominant movement. Urban life attracted the surplus population from the rural areas. The westward migration was accompanied by a counter movement toward the large cities in the east. These movements representative of the general trends in the nation affected Ohio in the characteristic manner.

The planning programs whether for urban centers, for states, for regions or for the nation imply some social control over the physical environment and consequently some direction in the movement of the people to attain certain desirable social and economic objectives. In Ohio the redistribution of the inhabitants has not been subject to social control but the present and proposed planning schemes may require the depopulation of certain areas and an infiltration of the surplus people into areas already occupied. As yet the relocation of inhabitants under social control has not changed essentially the population pattern of Ohio.

The population maps of Ohio presented herewith do not show migration as effectively as some other graphical devices but studied in sequence they portray in a general way the outstanding features of the population history. The dots, one for twenty-five inhabitants, and localized by civil townships, show in detail the distribution of the rural folk. The cities and villages are represented by spherical symbols, the volumes of which are proportional to the number of inhabitants. Since the volumes of spheres vary as the cube of a common dimension the populations represented by the symbols vary as the cube of the radii of the respective symbols.

(4) Department of Geography, Ohio State University.

The population map of Ohio for 1880 does not reveal the forces at work producing readjustments in the population pattern (see map, page 15). The map represents essentially the accomplishment of agricultural settlement of the land. A hundred years before, a thin stream of pioneers had penetrated the wilderness and begun the process of converting the virgin forest lands into productive farms. By 1880 settlement was practically completed, and the map reveals an evenness in the distribution of settlers. The population of the state was 3,198,062, of which about two thirds were classed as rural. The rural population increased slightly after 1880 reaching a maximum in 1890.

There still remained a few areas to be occupied especially in the northwest where the drainage of the extensive swamp lands was making available the fertile lands of the Maumee plain. Already certain areas in southeastern Ohio had begun to decline. Land abandonment in the hilly plateau section was under way before the fertile flat lands of northwestern Ohio had been settled. There was a continued increase in the rural population due in part to the high birth rate but after 1890 the migration from the farms caused a slight decline in the rural population.

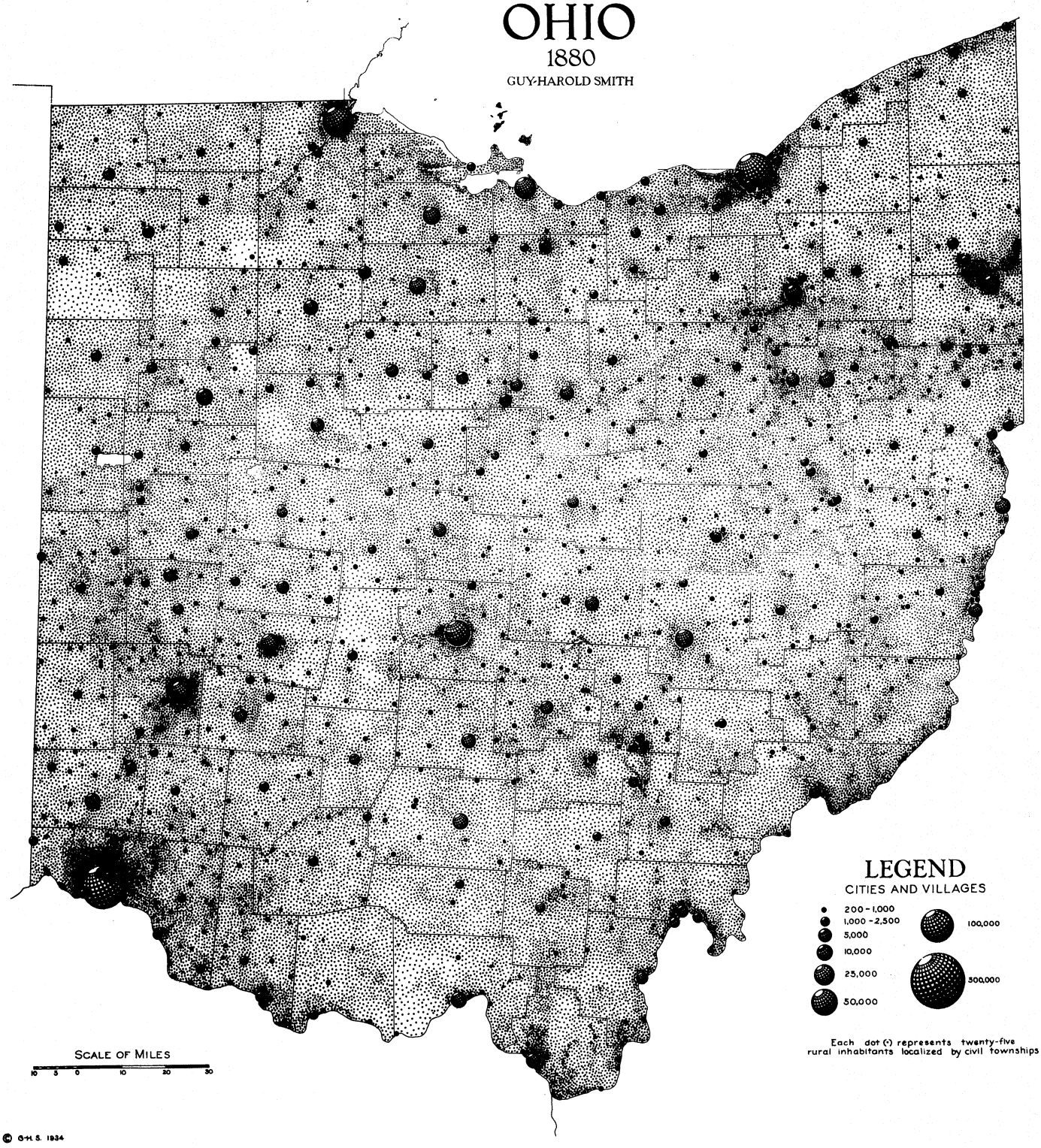
Beginning in 1850 the United States census has published the data on the state or country of birth of all residents. Up to this time Ohio was sufficiently attractive to be inviting to settlers from the older states to the east and south. By 1860, however, Ohio began to contribute settlers to the new lands to the west in excess to the number migrating to Ohio. There still remained good lands in northwestern Ohio but the process of drainage was slow and expensive. In 1880 the difference between the number born in Ohio but living in other states and the number born in other states but then living in Ohio was more than half a million. This exodus from Ohio, definitely under way by 1860 was not stayed until 1930. This population differential expresses numerically the relative attractiveness of Ohio as compared with the new lands being opened to settlement in the western states.

The cityward movement has been an accompaniment of the increase in numbers. By 1880 a third of the people of Ohio lived in cities and villages of more than 2500 inhabitants. Already the industrial revolution was accomplishing a reorganization of the population structure. The map for 1900 (see map, page 17) when compared with the one for 1880 shows graphically the process of urbanization. The rural population had remained practically stationary but the urban population had almost doubled in the two decades.

The westward movement of manufacturing found Ohio strategically located on the main east-west routes of commerce where could be assembled the raw materials and power resources necessary for manufacturing. The industrial market was also shifting westward in response to the persistent movement of settlers along the parallels. Much of the east-west commerce of the United States must cross Ohio and it is logical that many city dwellers would find employment in the commercial and industrial enterprises.

POPULATION MAP
of
OHIO
1880

GUY-HAROLD SMITH



Within Ohio intrastate migration was also accomplishing a redistribution of the inhabitants. Practically from the time of settlement Cincinnati was the largest urban center in the State. In 1850 the population was 115,435 while that of Cleveland was only 17,034. A half century changed conditions materially, for in 1900 the population of Cincinnati was 325,902 and that of Cleveland was 381,768. The development of the Lake Superior iron ores and the movement of the ore to the receiving ports up Lake Erie gave to Cleveland an opportunity to expand and serve the dual function of an industrial and commercial city. To the urban centers, large and small, the surplus rural people were migrating.

The map for the year 1900 shows the population structure just before the advent of the automobile which has given mobility to the people. The well developed railway system and the electric lines including the interurban and street car lines gave ample opportunity for the relocation of the inhabitants if they felt they could better their living conditions. The development of the suburban satellites was not dependent upon the automobile. Before the automobile had become an important means of transportation satellite cities had begun to cluster about Cincinnati and Cleveland. It was rapid transit by the electric lines which made it possible for city workers to live in the suburban areas. The development of the automobile and the extension of paved streets permitted a spread of the occupied portions of the suburban areas.

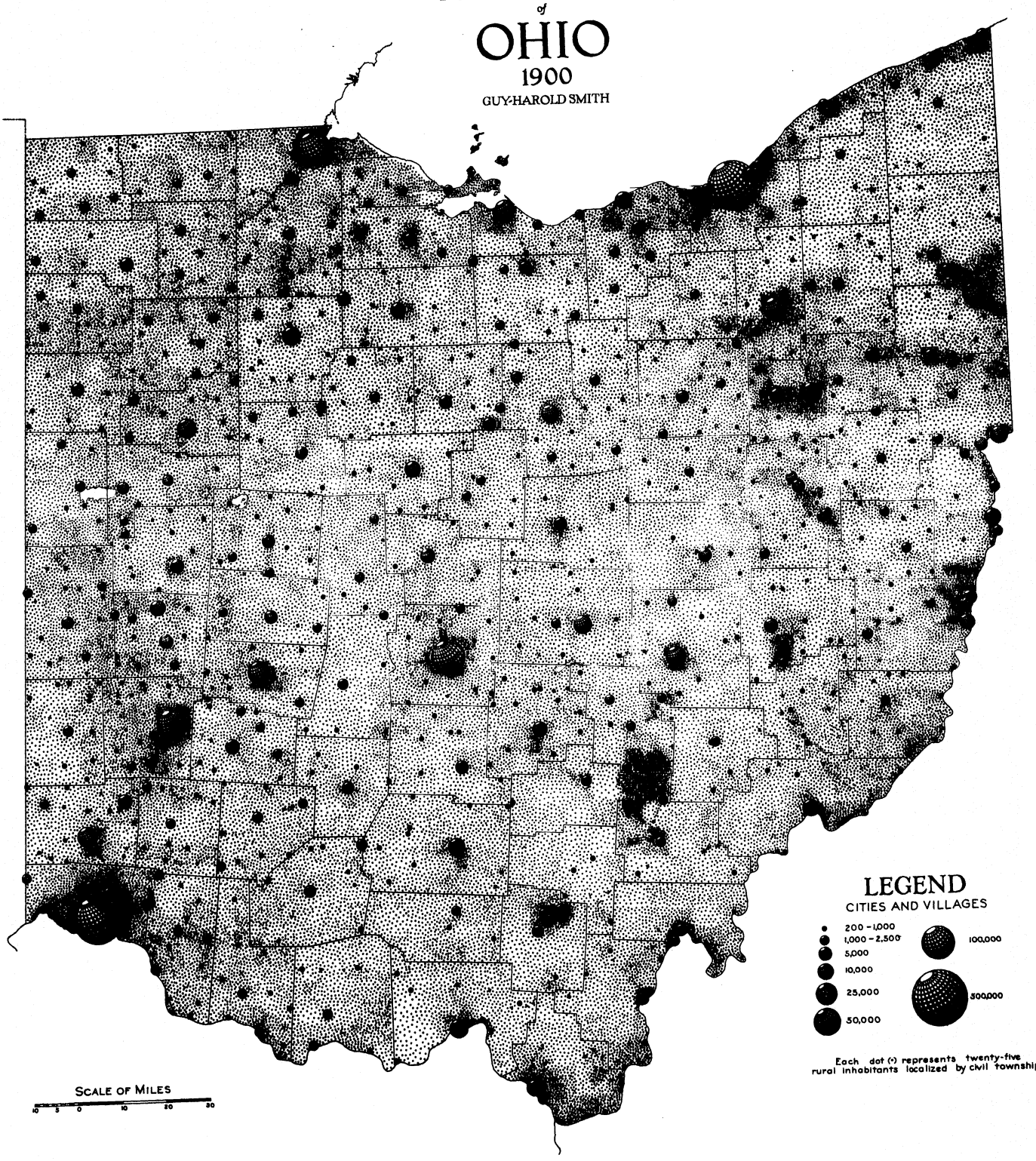
In the thirty-year period between 1900 and 1930 there was continued the population movements which were under way prior to the turn of the century (see map, page 19). In general population continued to decline in the strictly rural areas. Actually 41 counties showed a decline in population. In the decade between 1910 and 1920, 39 counties declined in population yet the total for the state increased from 4,767,121 to 5,759,394. In the decade between 1920 and 1930 the cityward movement continued. A total of 40 counties declined while the total population rose to 6,646,697, a gain of 15.4 per cent in the decade. Another manifestation of the same trend is the fact that in 1900 those counties with a population density of less than 100 per square mile contained 52 per cent of the inhabitants while in 1930 those counties with a density of less than 100 per square mile contained only 28 per cent of the inhabitants but represented 72 per cent of the area. Urbanization and its accompaniment, suburbanization, are significant expressions of the redistribution of the population in Ohio.

The decline in the rural population has not been confined to the poor areas but applies also to the fertile lands in western Ohio. Depopulation began in the rugged section of the southeastern part of the state but in recent decades practically all rural areas have shown decreases.

While the industrial development has produced a concentration in the large cities such as Cleveland, Cincinnati, Toledo, Columbus, Akron, Dayton and Youngstown, to name only the seven largest,

POPULATION MAP of OHIO 1900

GUY-HAROLD SMITH

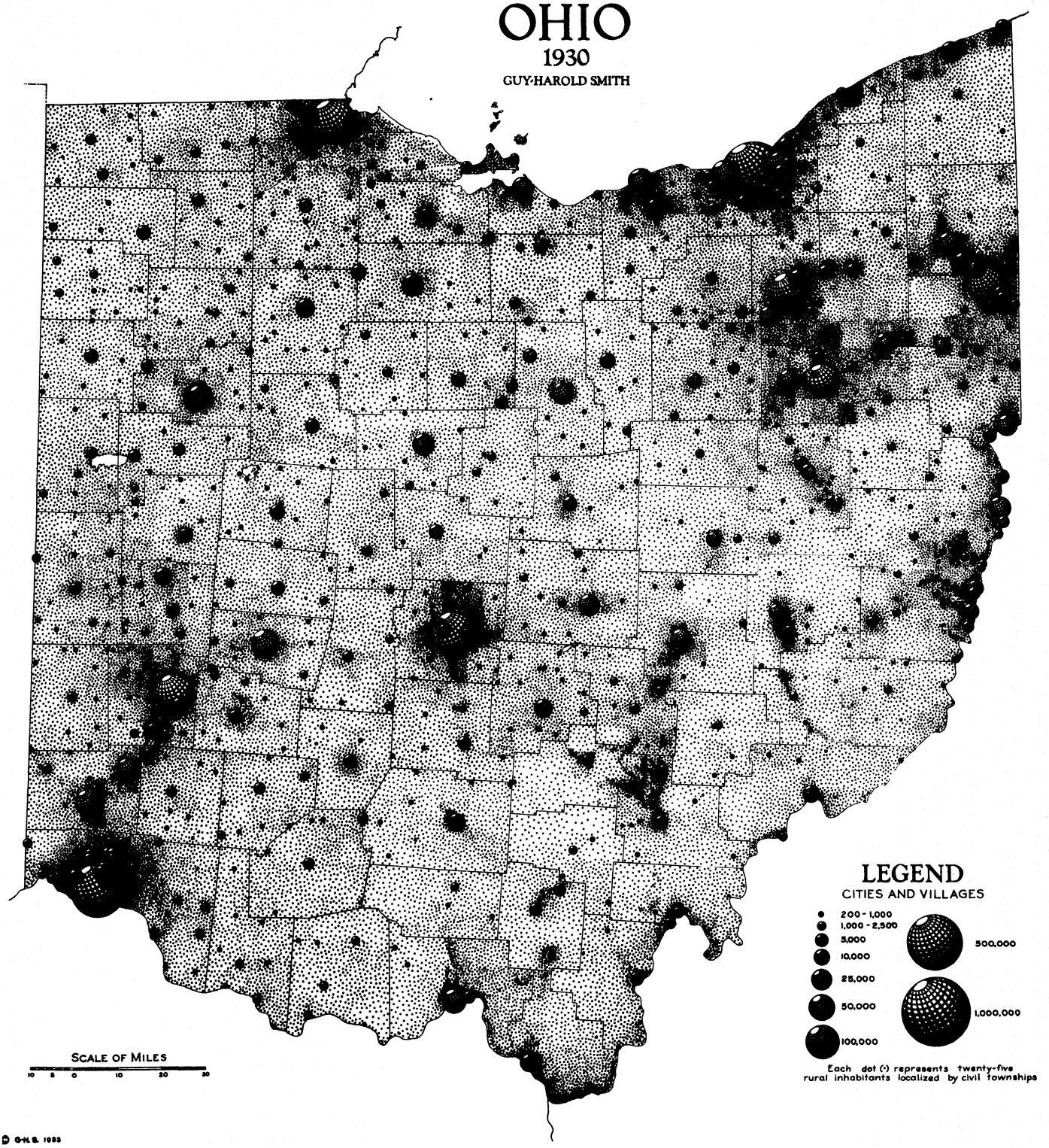


there has been an associated intensification in certain rural areas. The demand for fuel and other minerals has produced an infiltration of miners in the Hocking Valley and the Monroe and Belmont coal areas, though there has been a continual shifting of the industry with the depletion of local resources and the development of unworked deposits.

Movement to the urban centers has been accompanied in recent years by the settlement of the rural areas adjacent to the cities. The development of a system of hard surfaced roads has made it possible for a large number to engage in part-time farming, a system which permits the worker to engage in agriculture on a small scale and at the same time earn a part of his income in the nearby city. The rural population can be classed as rural-farm and rural-nonfarm. Between 1920 and 1930 the rural population showed a slight increase but the strictly rural-farm population continued to decline indicating that increasing numbers were moving into rural territory but the process of incorporation lagged behind settlement. In 1930 the rural non-farm population was 13 per cent greater than the rural-farm population. The 1930 map reveals this trend in the Miami Valley, around Columbus and in the Akron-Canton area. Beginning in 1930 and continuing for nearly three years there was a counter movement from the cities to the rural areas. This was due to the limited opportunities in the cities during the depression years. Before the end of 1933 the trend was again reversed re-establishing the shift from the rural areas to the urban centers.

POPULATION MAP
of
OHIO
1930

GUY-HAROLD SMITH



Rural Population Trends

The trend in rural population in Ohio during the 30 years following 1900 has generally been downward. Reduction in rural population occurred in 67 counties of the 88 counties during this period (See map, page 21). Without exception the counties in which rural population declined 10 per cent or more were rural counties, whereas those with small reductions or with increases were largely urban or industrial counties. Paulding County in the northwest part of Ohio had the greatest loss in rural population with a decrease of 44 per cent in 30 years; Jackson, Vinton, Hocking, and Monroe, all in the southeastern part of the state, also lost heavily.

In northeastern Ohio the migration of farmers to the city has in many instances been replaced by former city workers of foreign birth. In southeastern Ohio there has been a noticeable decrease in the farm population, a decrease which has been lessened by the immigration of farmers from Kentucky and West Virginia.

P.G. Beck in a bulletin, "Recent Trends in Rural Population in Ohio"(5), comments as follows:

"Ohio is now an industrial state with most of its population living in cities. Geographically, population increase in Ohio has been limited in recent years to those areas covered by, or rather immediately contiguous to, these cities.

"As the state has gradually become urban and industrial, rather than rural and agricultural, marked changes in the composition and reproductive rate of the population have occurred. The birth rate has fallen and children have become a relatively less important element in the population; whereas middle aged and elderly people have steadily increased in number and proportion. The large cities probably have never reproduced themselves and they are not doing so today. The rural population is more than reproducing itself, but it cannot entirely offset the deficit of the cities. Hence, the population of the State of Ohio is not now producing sufficient children to reproduce itself under conditions of a normal age and sex composition. Some of the most fertile areas in Ohio, from the standpoint of the production of children, are certain areas populated by people who have migrated into the state from states lying to the south and east.

"Since the Civil War, the general trend of population movement has been away from the rural districts and agriculture toward the urban industrial centers. The comparatively high birth rate of the rural population, improved agricultural technology, and the pull of cities which required immigration for growth were responsible factors. Between 1920 and 1930 rural Ohio sent upwards of 200,000 persons 15 years of age and over to the growing industrial centers..... The rural districts from which they migrated were left with abnormal proportions of young children and aged

(5) Ohio Agricultural Experiment Station bulletin No. 533, May, 1934.

RURAL POPULATION TRENDS

1900 - 1930

DECREASES IN 67 COUNTIES

STATE OF OHIO

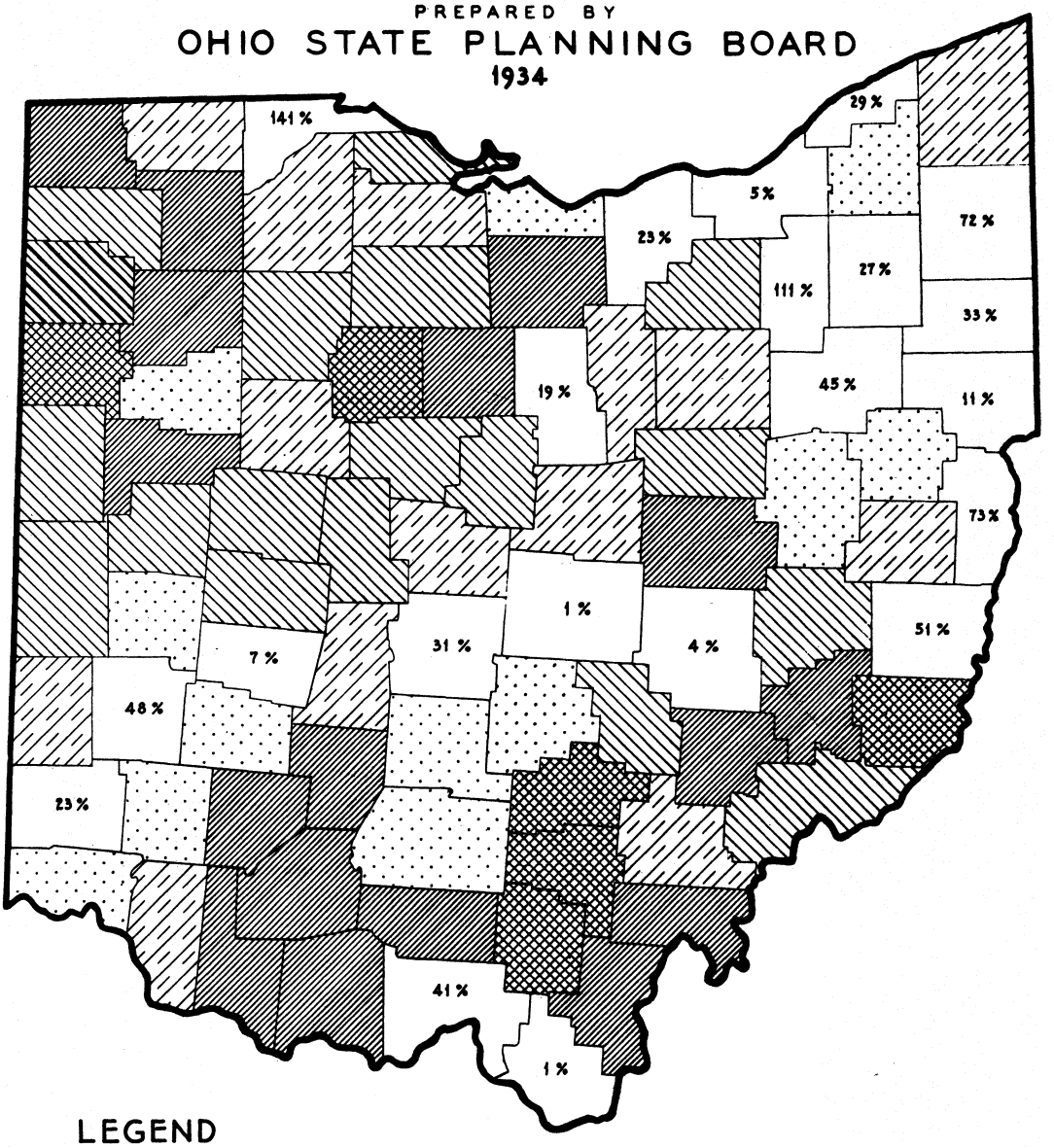
SCALE OF MILES

0 20 40 60 90

PREPARED BY

OHIO STATE PLANNING BOARD

1934



LEGEND

25 % INCREASE 25 %

DECREASE UNDER 5 %

DECREASE 5 % TO 9 %

DECREASE 10 % TO 19 %

DECREASE 20 % TO 29 %

DECREASE 30 % TO 39 %

DECREASE 40 % TO 59 %

people. The number of young adults left in the community was often too small to maintain satisfactory social life. Rural wealth had been spent heavily to educate the children who would leave the community and to purchase the property rights that those migrants carried with them. Often the population became too sparse and the wealth too meagre to support the necessary community institutions. Many communities never recovered from the drain of population and wealth thus placed upon them.

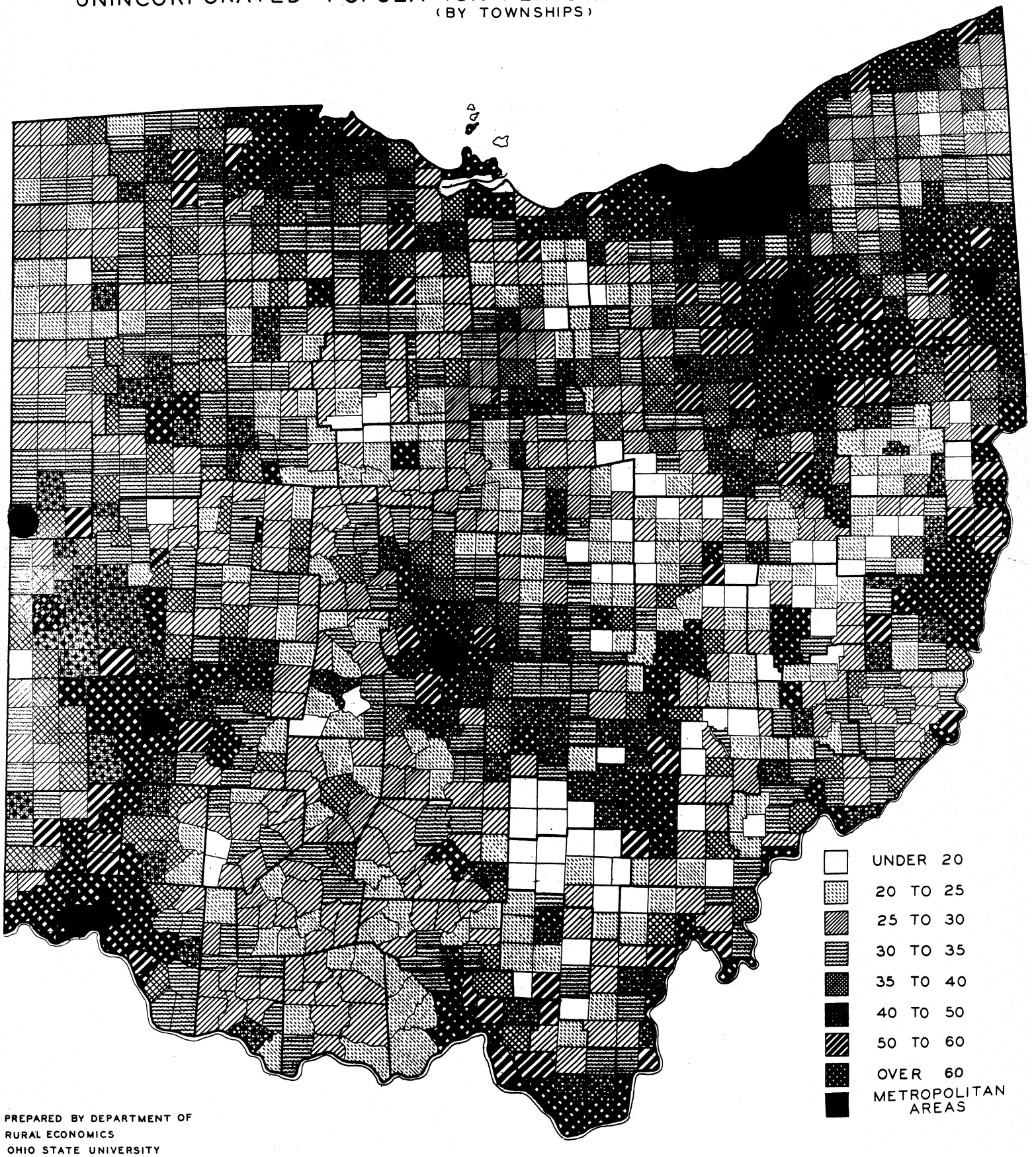
"During the period since 1929, the circumstances arising out of the economic depression have reversed the tide of rural-urban migration. Unemployment and heavy relief burdens in the cities have turned the faces of an increasing number of people toward the land as a source of subsistence".

Markets

Situated as Ohio is between the industrial east and the agricultural midwest, it partakes of the character of both and shares in the advantages of both. Relatively speaking all Ohio farm lands are near a market. Rapidly growing and widely distributed cities provide local markets for farm products. This gives greater diversity to the type-of-farming pattern of the state than might be expected based upon differences in natural features. In the environs of many of the larger cities urban land values have tended to complicate the problem of rural land-use. As a whole the state is just about self-sufficient in the production of the staple farm products. With dairy, hog and poultry products, for example, the production within the state just about equals the consumption. With beef and potatoes there is a distinct deficit. With wheat the total production represents about Ohio's share of consumption on a bushel basis, but due to the fact that Ohio's wheat is of the soft winter variety much wheat is shipped out of the state and other wheat shipped in.

In 1930 the census reported 73.5 per cent of Ohio farms to be on improved roads. Several western Ohio counties had less than 3 per cent of their farms on dirt roads, wheras in several of the southeastern counties over 60 per cent of the farms were still located on dirt roads. Motor trucks now bring farm products into the state from west of the Missippi River and from Florida and carry farm products out to New York and the Atlantic sea-board.

UNINCORPORATED POPULATION PER SQUARE MILE IN OHIO 1930
(BY TOWNSHIPS)



PREPARED BY DEPARTMENT OF
RURAL ECONOMICS
OHIO STATE UNIVERSITY

Present Land-Use in Ohio

Major Type-of-Farming Areas

Three general agricultural areas exist in the State, the corn producing section in the western half of the state(see map, page 25), the dairy, small grain and hay section in the central and northeastern part, and the pasture section in the south and eastern part. The corn area or area No. 1 is the most intensively utilized of the three with 89.5 per cent of all land in farms used while areas No. 2 and No. 3 have 82.7 and 75.5 per cent, respectively. In areas No. 1 and No. 3, the farms averaged a little over 100 acres in size. Area No. 2 had the smallest farms, 89 acres per farm.

Area 1 comprises approximately 46 per cent of all land in farms and 62 per cent of all land in crops in Ohio. Woods occupy less than 10 per cent of the land, which is the smallest percentage in wood in the three areas of the state. The general topography is the most favorable in the state for crop production.

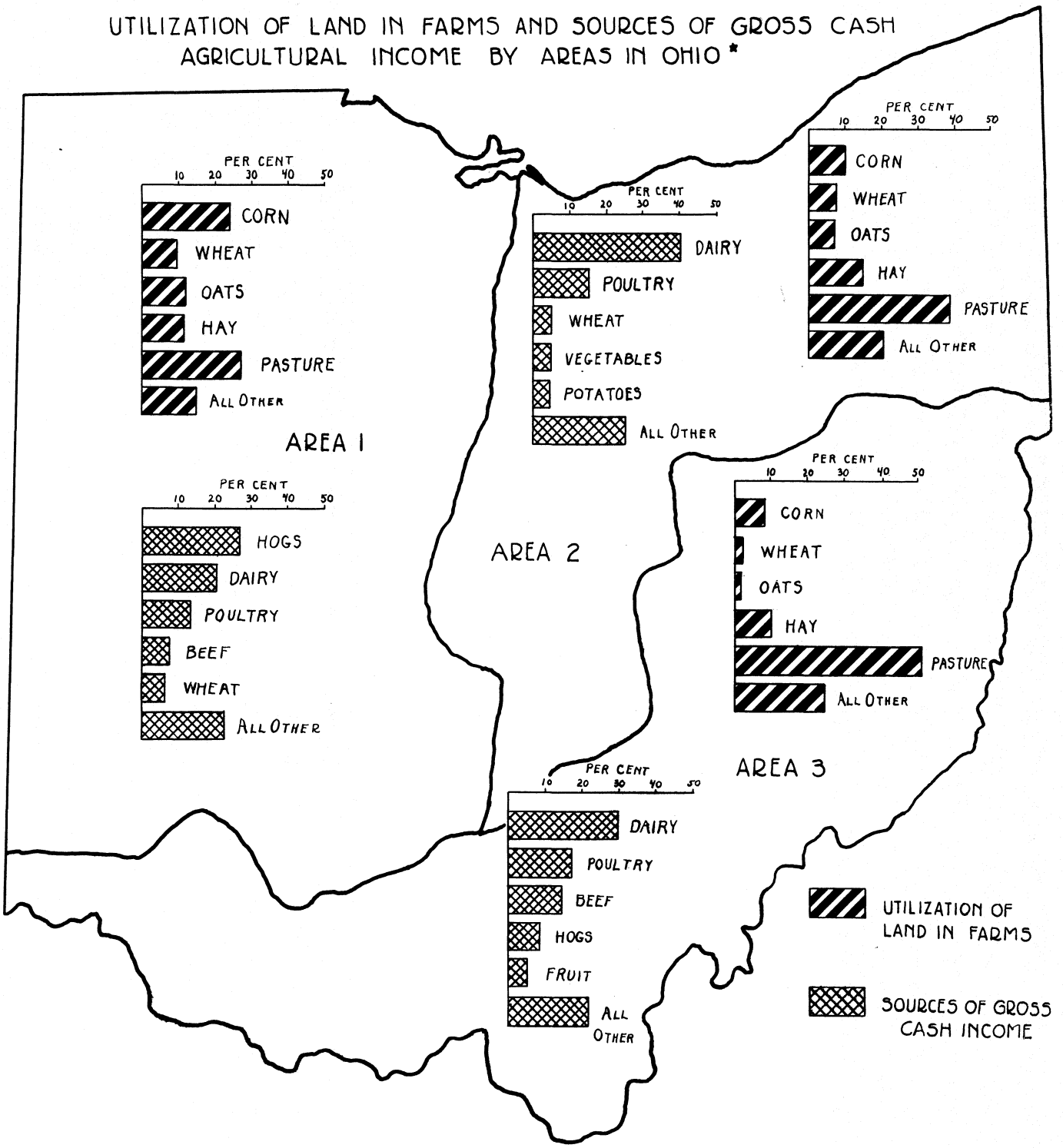
Corn is the important crop and utilizes about one-fourth of the land in farms; this is slightly more than is devoted to all other grains. Oats and wheat are the principal small grains; some barley and buckwheat are raised but in very small quantities. In some parts of the area the amount of land sown to wheat is greater than that used in the production of oats, and in other sections the opposite condition exists. However, for the entire area, 12.1 per cent of the land in farms is in oats and 9.8 per cent in wheat.

Legumes occupy a little over one-third of the acreage of land devoted to hay crops, and timothy or mixed hay the remainder. In both of the other areas a much smaller proportion of the hay crop is made up of legumes. Although the percentage of land in farms in hay is slightly below the state average, the yield per acre is sufficiently high to yield an abundance of hay. Likewise, the carrying capacity of the pasture is one-fourth or more greater than in other areas, thus requiring a smaller acreage for pasture and at the same time making it possible to carry at least the average amount of livestock.

A farm practice characteristic of the area is that of hogging-off corn. Seven per cent of the corn in this area was harvested in this way as compared with 2 per cent in the remainder of the state.

Fifty seven per cent of Ohio's gross cash income to agriculture in 1930 and 1931 was derived from area No. 1; the cash agricultural income of the area was obtained from the following enterprises: hogs 27.7 per cent, dairy 21 per cent, poultry 13.5 per cent, beef 7.9 per cent, wheat 6.8 per cent, corn 5.5 per cent, and all other, 17.6 per cent.

UTILIZATION OF LAND IN FARMS AND SOURCES OF GROSS CASH AGRICULTURAL INCOME BY AREAS IN OHIO *



PREPARED BY LAND PLANNING CONSULTANT IN COOPERATION WITH RURAL ECONOMICS DEPARTMENT OHIO STATE UNIVERSITY

* LAND USE DATA, 1930 CENSUS - INCOME DATA, 1930-31 ESTIMATE.

Area 2 or the dairy, small grain, and hay area in the central and northeastern section, comprises about one-fourth of the land in farms and 20 per cent of all land in crops, and is the important industrial section of the state. Owing primarily to the large population and industrialization only 78 per cent of all of the land in the area was in farms in 1930.

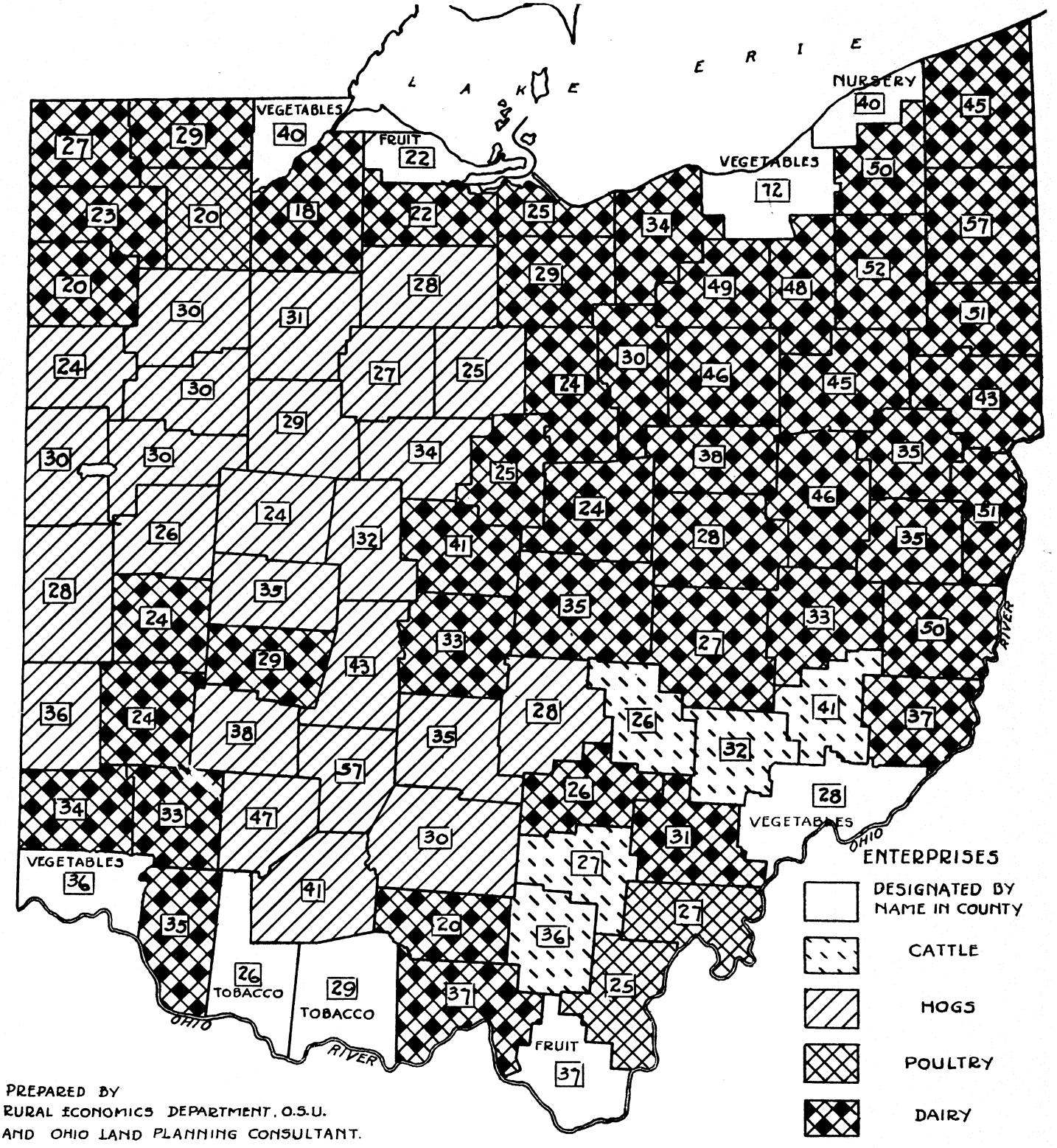
Oats and wheat or the small grains make up about three-fifths of the acreage in grain production, and corn, two-fifths. Corn utilizes 10.7, wheat 7.5, oats 7.3 per cent and all grains 25.7 per cent of land in farms, in each case the per cent of land devoted to each crop is less than in Area 1. However, the relative importance of oats and wheat compared with corn is greater than in area 1. Fifteen per cent of the land is wooded and the topography is more irregular and not so well adapted to the cultivation of large areas as is the western part of the state, consequently hay and pasture assume a more prominent position. In area 2, 15 acres out of each 100 acres of land in farms are used for hay, which is 20 per cent more hay than in area 1 and 30 per cent more than in area 3. The acreage of hay crops is 80 to 85 per cent timothy or mixed and 15 to 20 per cent legumes. Timothy or mixed hay makes up a greater part of the hay acreage than in any of the other areas of the state. Approximately two-fifths of the land is in pasture, which makes it a favorable area for dairying or other similar livestock enterprises that use more coarse feeds and do not require as large a quantity of concentrates as pork production.

In 1930 the farmers in this area were purchasing approximately twice as much feed per farm as the average of the entire state. Corn harvested for silage amounts to 17.4 per cent of the total corn acreage; in the remainder of the state 3.2 per cent of the corn acreage is so used.

The agricultural income for the area was obtained from the following enterprises: dairy 40.7 per cent, poultry 16.7 per cent, wheat 5.8 per cent, vegetables 5.5 per cent, potatoes 5.4, hogs 5.1 per cent, and all other 20.8 per cent. Twenty three per cent of the 1930 and 1931 Ohio gross cash income was derived from the dairy, small grain and hay area which, as previously mentioned, includes about one-fourth of the land in farms in the state.

Area 3, the pasture area in the southern and eastern part of the state, embraces one-third of the land in farms and 18 per cent of the land in crops in the state. Forty three per cent of all woodland on farms in the state is located in this area and 17 per cent of the land in farms in this area is wooded. However, with 20 per cent of all the land in this area not in farms (a large part is in woods but is not reported in the Census) woodland occupies a much larger part of the area.

THE ENTERPRISES RANKING FIRST IN THE PRODUCTION OF GROSS CASH AGRICULTURAL INCOME IN 1930 , 1931 BY COUNTIES



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RURAL ECONOMICS DEPARTMENT, O.S.U.
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THE NUMBER IN THE COUNTY DESIGNATES THE PERCENTAGE OF TOTAL GROSS CASH INCOME DERIVED FROM THE ENTERPRISE INDICATED.

Pasture is the major use of the land; over half of all the land in farms and two-thirds of the land used for agricultural purposes is in pasture. The topography is rolling or rough, and hence not conducive to crop cultivation on a very large scale. The land can best be utilized by a permanent crop. The rough topography is due to the fact that the area, with the exception of the southwest 4 or 5 counties, is unglaciated. The topography of the 4 or 5 counties that were covered by the glacier is rough but they contain much more level upland than the unglaciated counties.

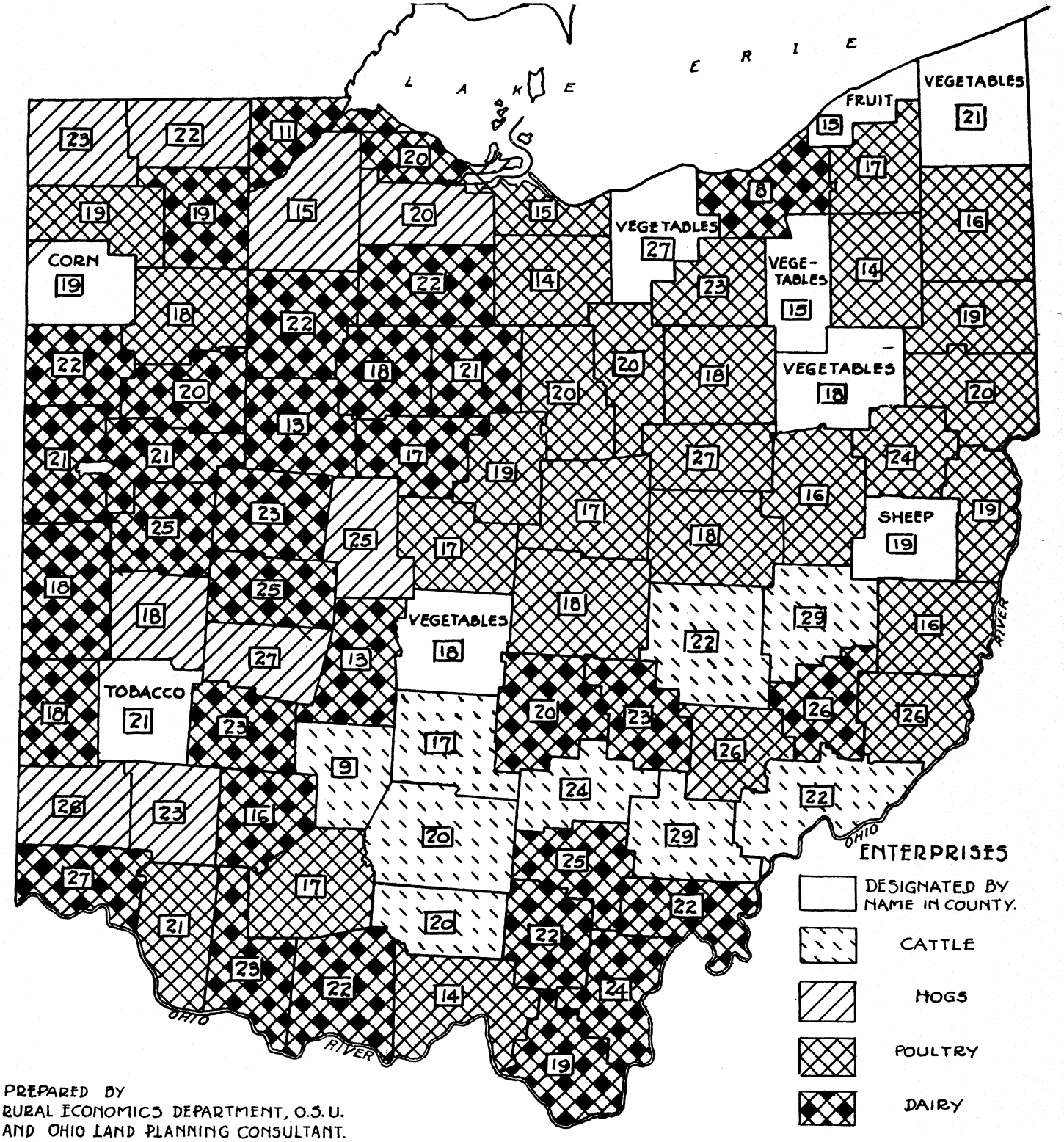
Corn utilizes 8.7 per cent, wheat 2.9 per cent, and oats 2.2 per cent of the land in farms. Corn is the predominant cultivated crop throughout the area. The 5 or 6 southwestern counties that were glaciated have slightly more cultivated land, almost entirely utilized by a greater acreage of corn.

The hay acreage is over three-fourths timothy or mixed and the yield is relatively low. Some use is made of grain cut and fed unthreshed, 17.2 per cent of the total oats crops being handled in this manner, as compared with 3.1 per cent in the remainder of the state.

Pasture being the major use of the land, livestock necessarily constitutes the bulk of the income in the area. Only 20 per cent of Ohio's total gross cash income to agriculture in 1930 and 1931 came from this area. Dairying ranked highest with 29.4 per cent of the total agricultural income, followed by poultry with 17.8 per cent, beef 16.6 per cent, hogs 8.4 per cent, fruit 5.5 per cent, sheep 5.1 per cent and all other 17.2 per cent.

Due to the low quality and small carrying capacity of much of the pasture land in this area and the relatively small amount of grain and hay available for feed, the quantity of livestock that can be maintained is definitely limited. The size of farm business for the most part is small and often whole sections approach a self-sufficing type of agriculture. According to the United States Census of 1929, 14 per cent of all the farms in the area was classed as self-sufficing as compared with less than 4 per cent in the remainder of the state.

THE ENTERPRISES RANKING SECOND IN THE PRODUCTION OF GROSS CASH AGRICULTURAL INCOME IN 1930 AND 1931 BY COUNTIES



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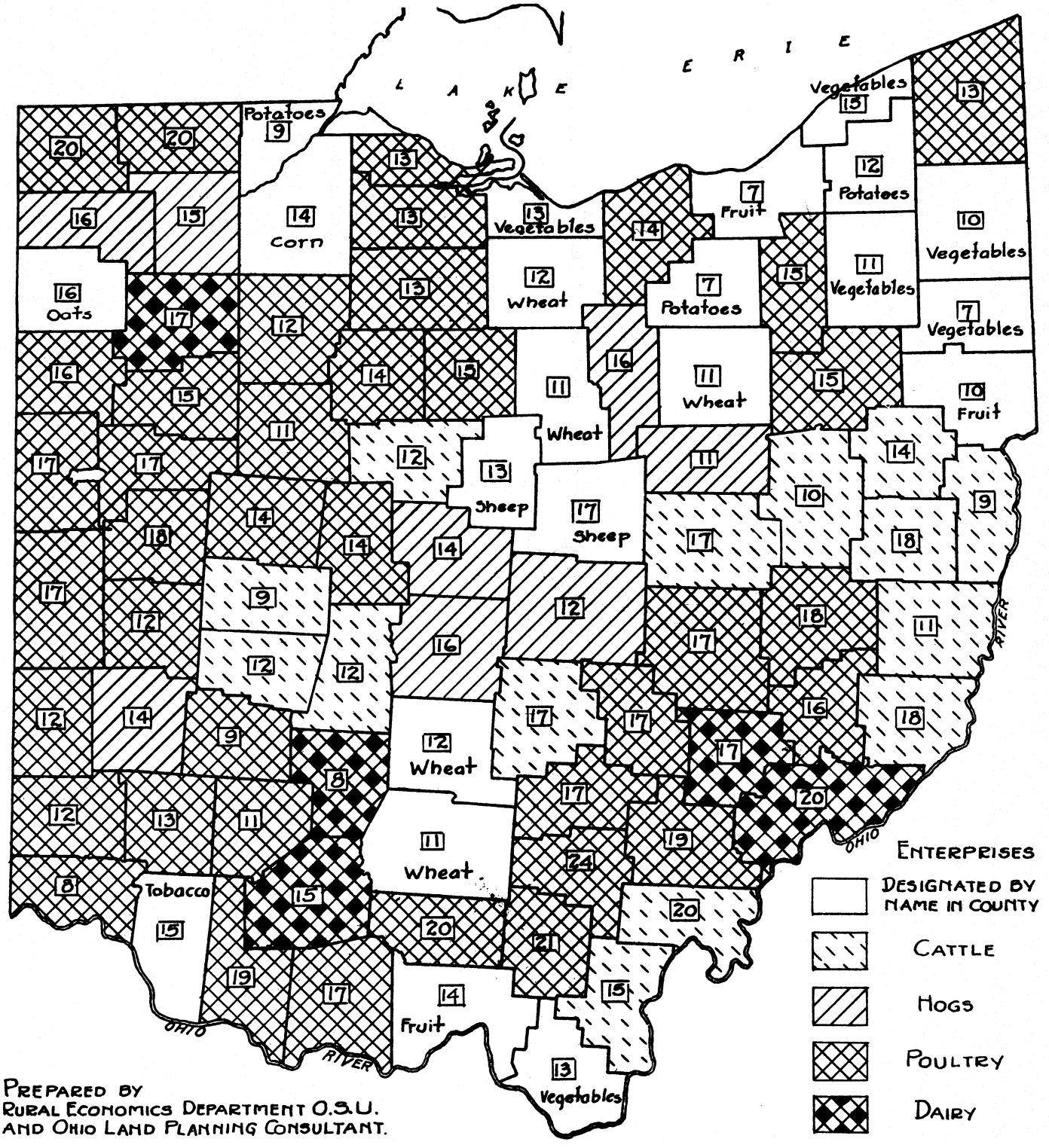
THE ENTERPRISES RANKING THIRD IN THE PRODUCTION OF GROSS CASH AGRICULTURAL INCOME IN 1930 AND 1931 BY COUNTIES



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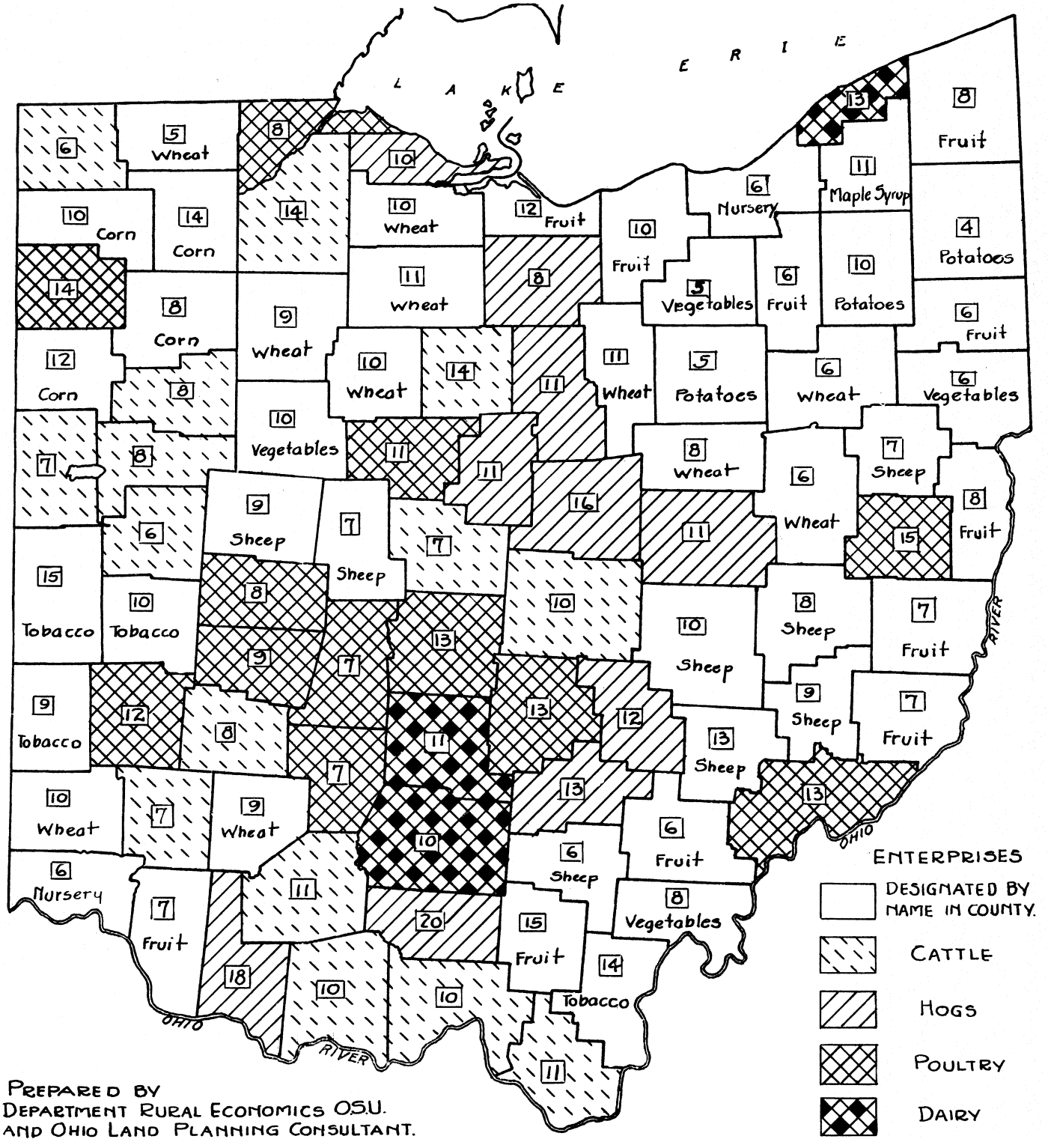
THE ENTERPRISES RANKING FOURTH IN THE PRODUCTION OF GROSS CASH AGRICULTRAL INCOME IN 1930 AND 1931 BY COUNTIES



PREPARED BY
DEPARTMENT RURAL ECONOMICS O.S.U.
AND OHIO LAND PLANNING CONSULTANT.

Land in Farms

In 1930 the census reported that 82.5 per cent of the land area of the state was in farms (see map, page 35). Of the land not in farms in 1930, which comprised about 4,500,000 acres, probably one-third was taken up by cities and industrial activities and the other two-thirds was rural land laying outside the bounds of farms. In general the lower percentage of land in farms in northeastern Ohio is due to urban development, but in part it is due to the presence of some land too poor for farming. In the south central part of the state there is a relatively large block of townships in which the percentage of land in farms is small, due primarily to the low productivity of the soil.

PERCENTAGE OF LAND IN FARMS IN OHIO 1930

(BY TOWNSHIPS)

PREPARED BY RURAL ECONOMICS DEPARTMENT O.S.U.

Size of Farms

The average size of farms in Ohio in 1930 was 98 acres (see map, page 37). The number of acres per farm increased 9.6 per cent between 1900 and 1930. Acres per farm increased in 76 counties between 1920 and 1930 and decreased in 12. In more than one-third of the counties, farms have been increasing in acreage for 30 years, and in some counties they have increased in size for the past 40 years.

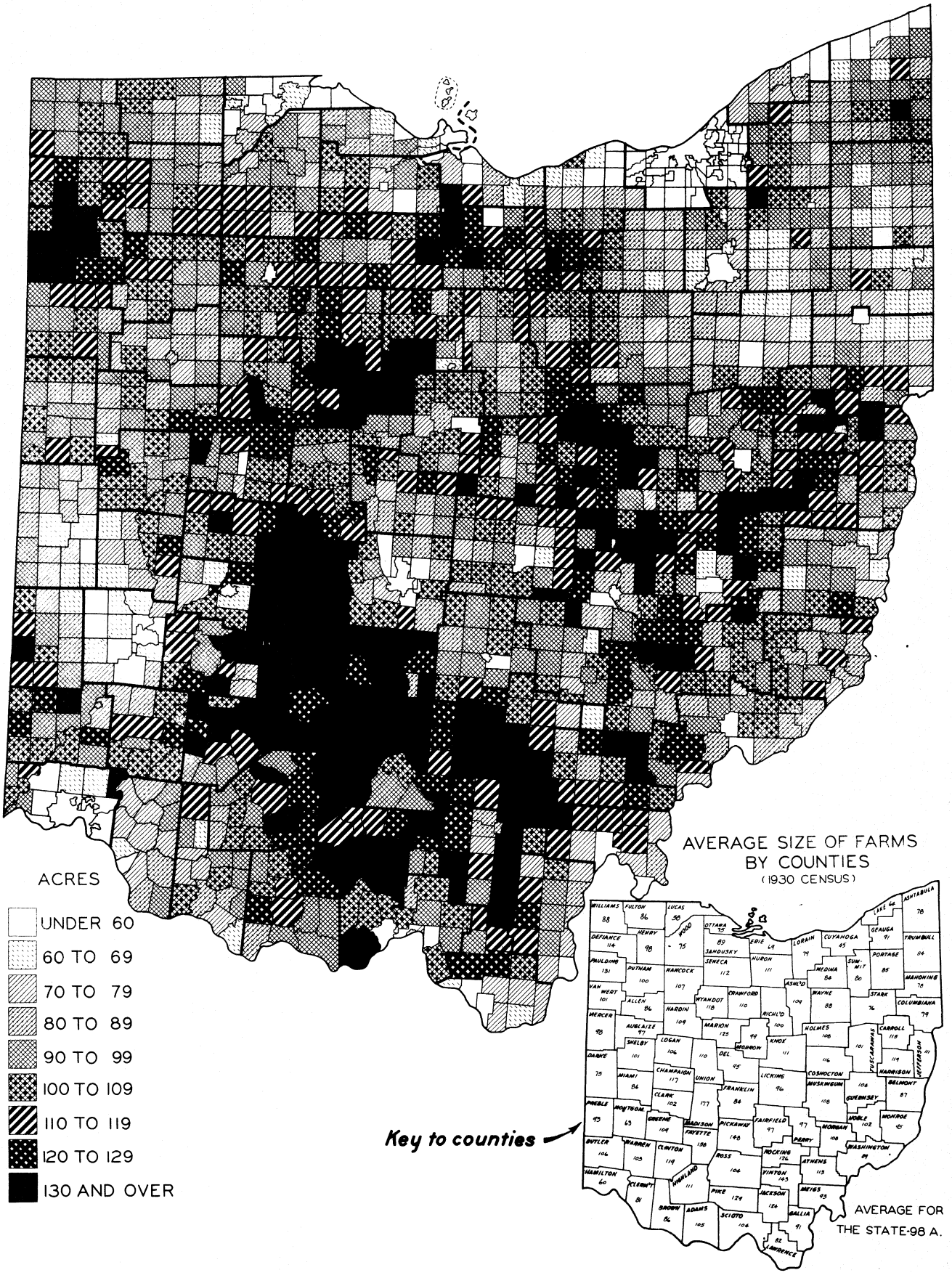
Practically all counties showing declines in the size of farms were metropolitan or industrial. Likewise the counties with small farms were metropolitan and industrial counties. In limited areas where truck gradening or areas where part-time farming had developed the average size of farm was small. In Cuyahoga County the average acreage per farm was 45, in Lucas 58, in Hamilton 60, in Montgomery 63, and in Lake 64.

The largest farms in the better agricultural areas of Ohio were in, and adjoining, Madison, Fayette and Pickaway counties. A similar block of large farms exists in the less productive soil area of the state. This block of large farms is concentrated in, and adjoining, Hocking and Vinton counties. Scattered throughout the state are numerous townships in which the average acreage per farm is 130 or more.

In 1930 farms of less than 50 acres in size comprised 26.7 per cent of all farms in the state. Ten years earlier this same group made up 29.6 per cent of the total. Between 1920 and 1930 the number of farms in Ohio with less than 50 acres per farm declined 23 per cent whereas the total number of farms in the state declined 14.6 per cent.

AVERAGE SIZE OF FARMS IN OHIO, BY TOWNSHIPS

(1930 CENSUS)



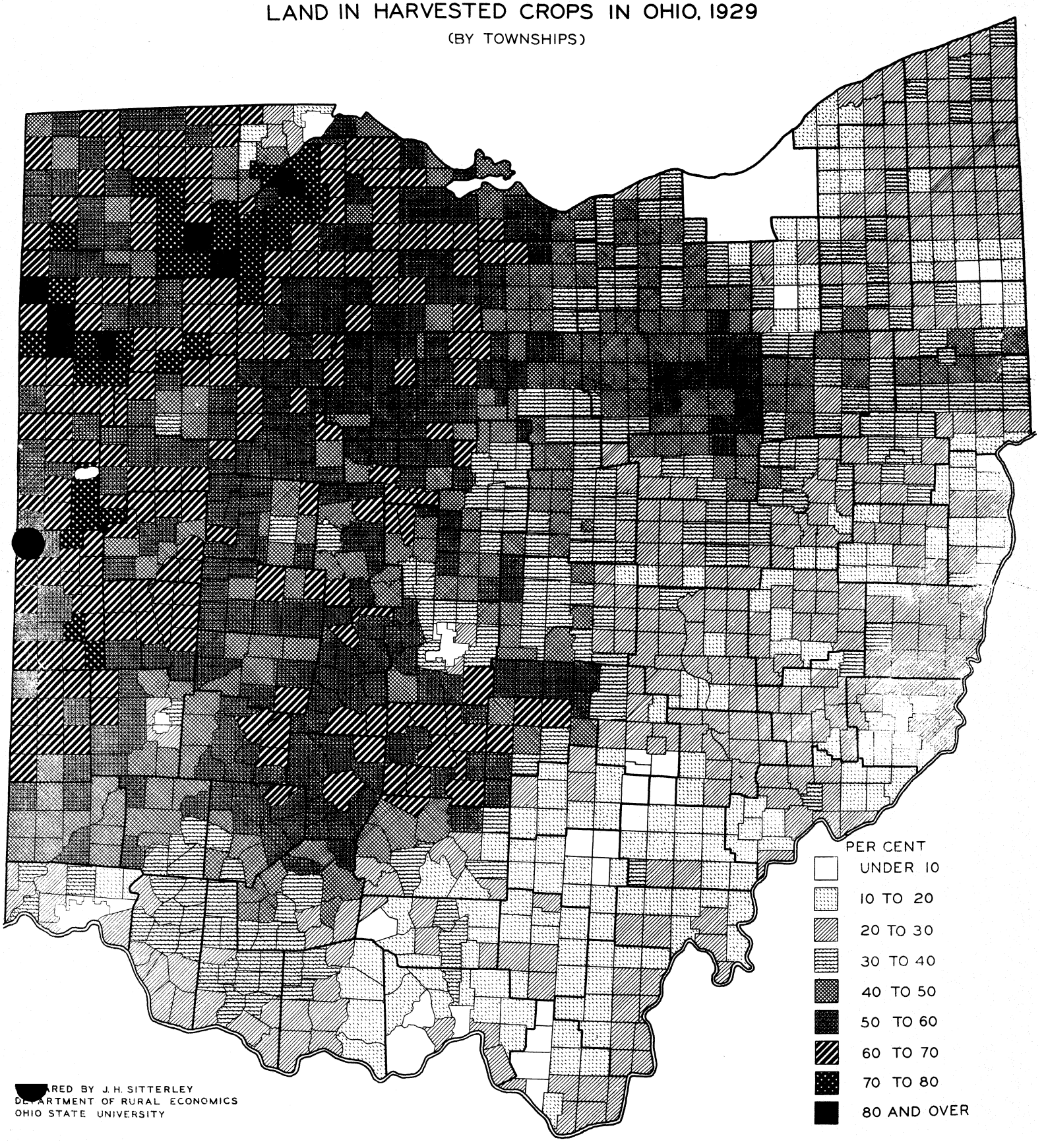
Land in Harvested Crops

Approximately 40 per cent of the entire land area in the state was in harvested crops in 1929 (See map, page 39). There was a wide variation in the amount of land that was in harvested crops. There were 17 townships, all located in rural counties in the south central part of the state, that had less than 10 per cent of their total area in harvested crops, whereas, in 7 townships, all in northwestern Ohio, 80 per cent or more of the total land area was so used.

The counties adjacent to and near the Ohio River in the southwest and those in the southeastern and eastern counties of the state were with the exception of a few townships, below the state average in this respect. In most townships in southeastern Ohio or the unglaciated section of the state, harvested crops comprised less than 30 per cent of the total, and in a majority of the unglaciated townships that lie south and west of the Muskingum River less than 20 per cent.

LAND IN HARVESTED CROPS IN OHIO, 1929

(BY TOWNSHIPS)



PREPARED BY J. H. SITTERLEY
DEPARTMENT OF RURAL ECONOMICS
OHIO STATE UNIVERSITY

Land in Pasture

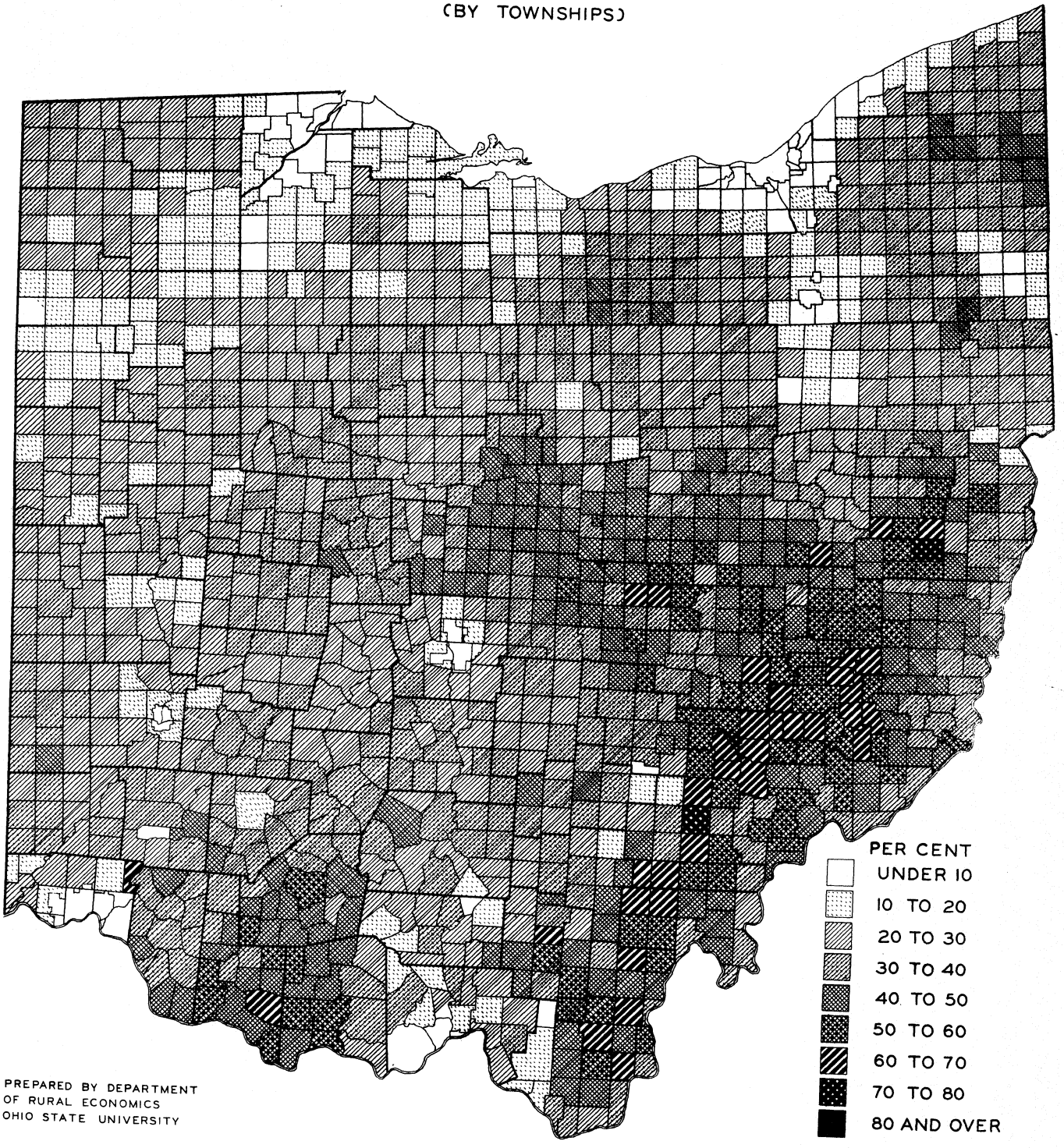
The predominance of pasture land in southeastern Ohio is due largely to topography and in part to some limestone out-croppings which occur in the eastern half of this area (See map, page 41). The acreage of land in pasture is no indication of its carrying capacity. Southeastern Ohio, with a high percentage of land in pasture, is definitely limited in the amount of livestock that can be grazed because of the low quality of much of the pasture. Another factor limiting the quantity of livestock that can be raised in this area is the small amounts of grain and hay that can be grown for winter feeding.

There are a rather large number of townships to be found in Lawrence, Scioto, Adams, Pike, Ross, Jackson, Vinton Hocking, Athens, and Perry counties in which the per cent of the total land pastured is less than 30, as compared with 50 per cent or more in many of the unglaciated townships to the east and north.

In many townships in northwestern Ohio less than 20 per cent of the land is pastured, however, the amount of livestock carried per township often exceeds that pastured in townships in the southeast.

PERCENTAGE OF LAND IN PASTURE IN OHIO, 1929

(BY TOWNSHIPS)



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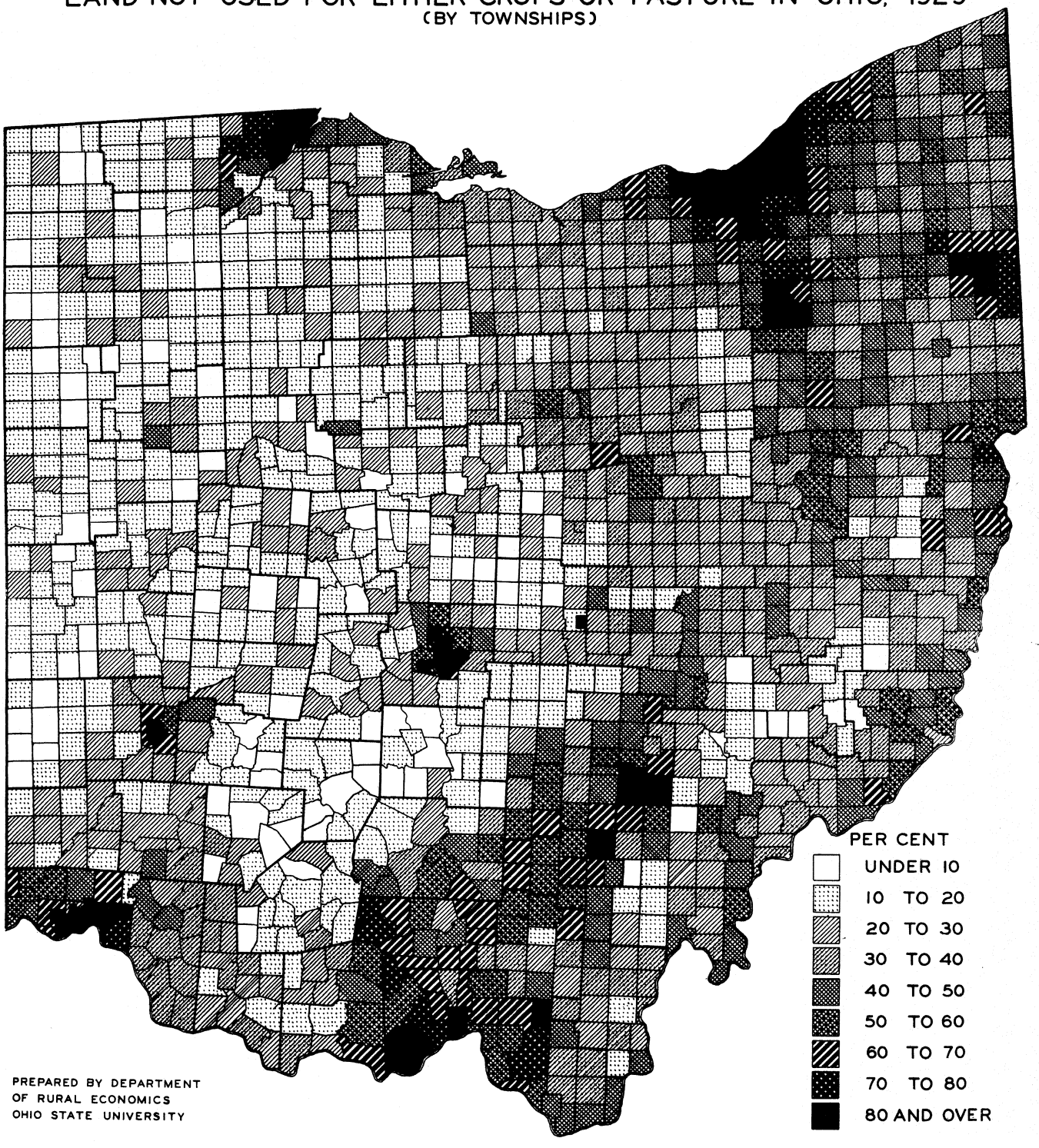
Land Not Used for Crops or Pasture

The areas of the state least used for agricultural purposes can perhaps best be shown by a map indicating the per cent of land not used either for crops or pasture (See map, page 43). This shows a concentration of such land around the larger cities in the industrial northeast and in the poorer land areas of the south central and southeast. In 64 townships in the south central part of the state 50 per cent or more of the total land area was not used for either harvested crops or pasture in 1929. The general location of these townships is in the area with the lowest per cent of the land in harvested crops.

A comparison of the map showing the percentage of land not used for either crops or pasture with the map, page 63, on tax delinquency, with map, page 71, on percentage of population on relief, and with map, page 57, on the value of farm land and buildings April, 1930 all center attention on the same area.

LAND NOT USED FOR EITHER CROPS OR PASTURE IN OHIO, 1929
(BY TOWNSHIPS)



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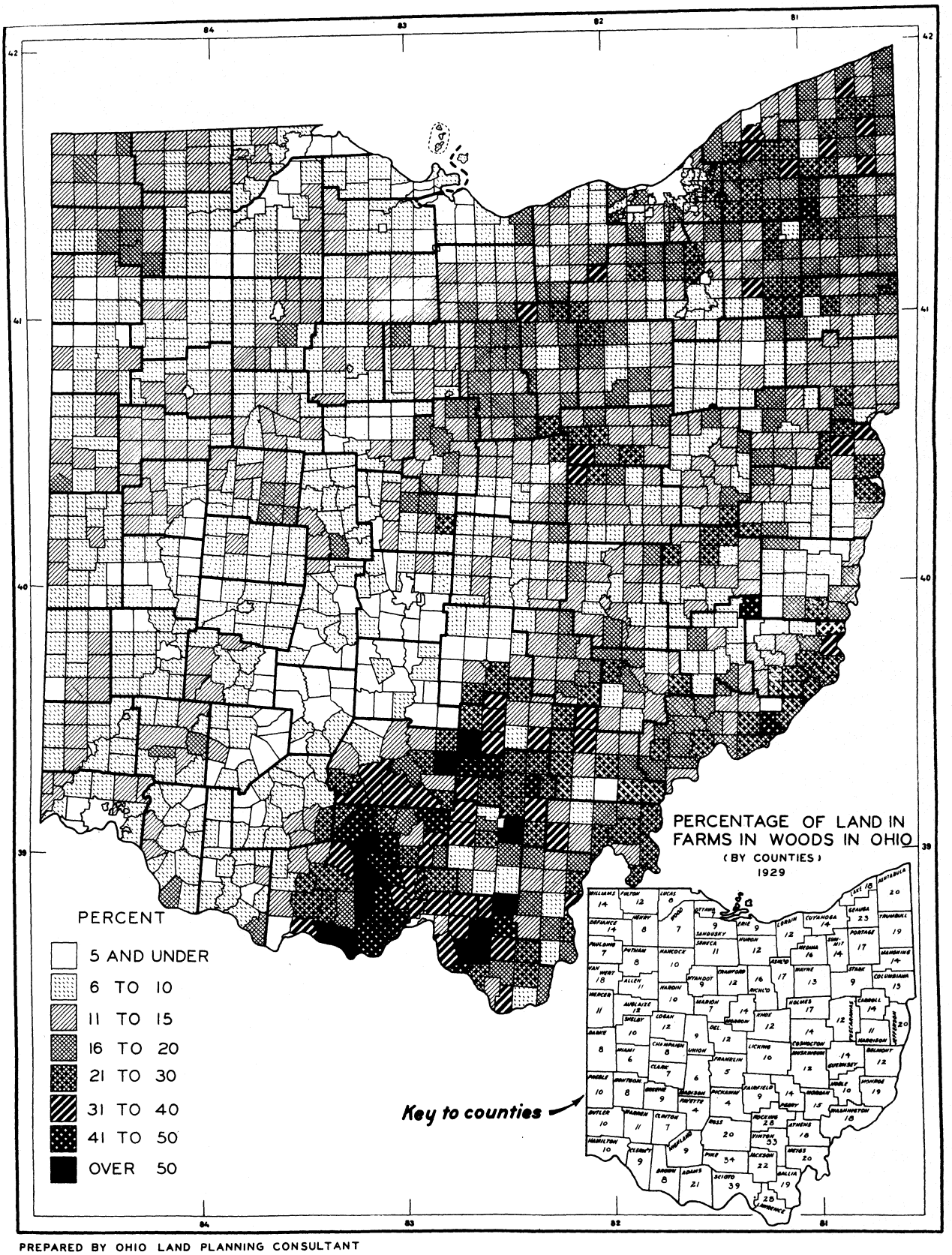
Land in Farms in Woods

The areas with the largest percentage of farm land in woods are found principally in the south central portion of the state with scattered townships in the eastern river counties and in the northeast counties of the state (See map, page 45).

Only 10 townships have 50 per cent more of the land in farms in woods (woodland in pasture and woodland not used for pasture) according to the census figures for 1930. Land not reported as being in farms in the area south and east of the glacial boundary amounted to approximately 1,700,000 acres or 21 per cent of total land in this area (see table, pp.22-26) and it has been estimated by members of the Agricultural Extension Service that at least one-third of this acreage is in woods and brush. The census reported 2,171,164 acres of woods on farms in the unglaciated area in 1930. To this may be added the 566,666 acres estimated to be in woods on the land not in farms, bringing the total to 2,737,830 acres or 18.4 per cent of the total unglaciated area in woods.

PERCENTAGE OF LAND IN FARMS IN WOODS, IN OHIO 1929

(BY TOWNSHIPS)



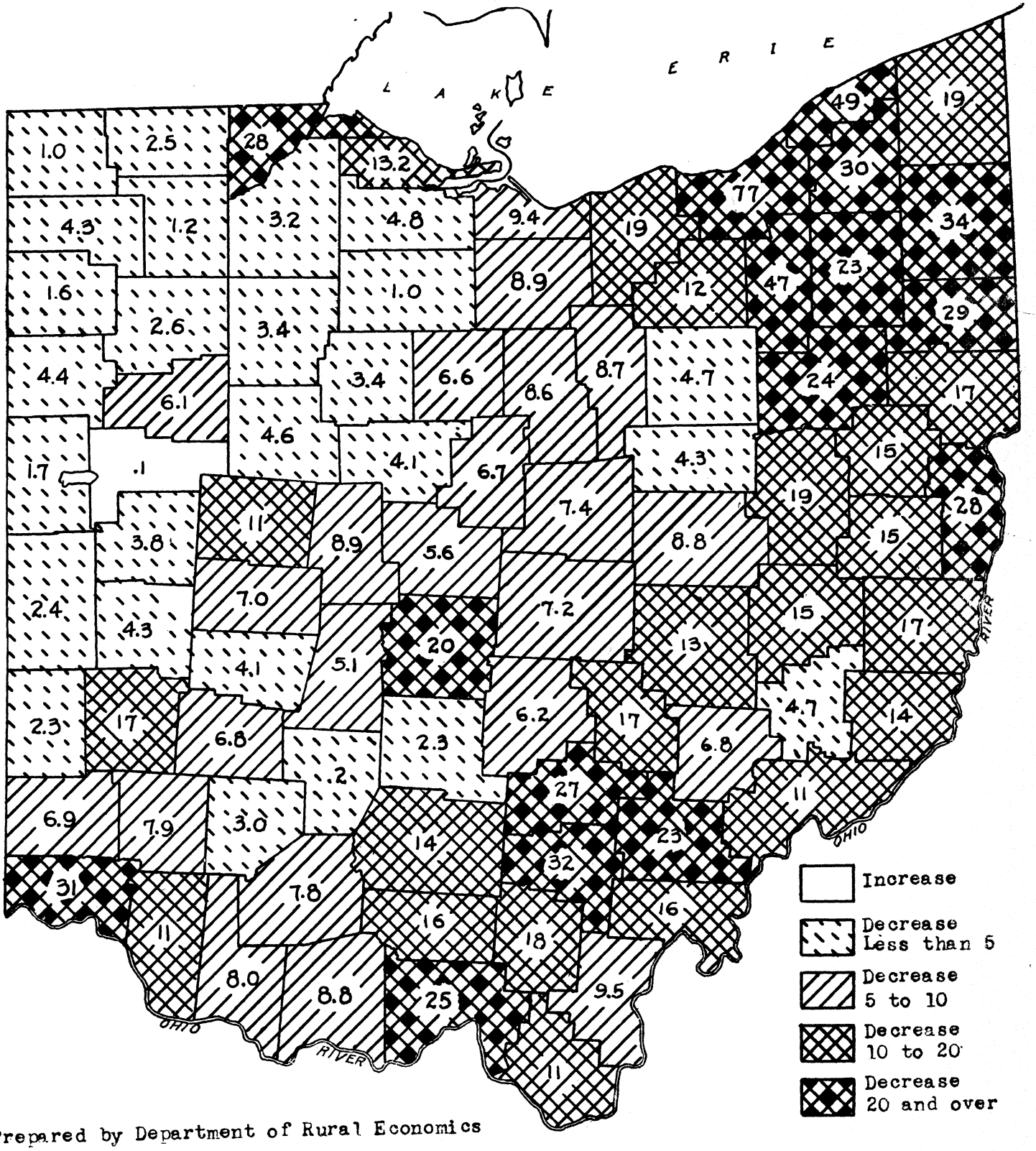
PREPARED BY OHIO LAND PLANNING CONSULTANT

Trends in Land-Use, 1900-1930

Land in Farms, Percentage Change

There was a shrinkage of over 12 per cent in the area of land in farms during the thirty years from 1900 to 1930 (See map, page 47). Urbanization and abandonment of marginal land were the leading causes for this. The greatest shrinkage has taken place in the northeastern part of the state, an area where rapid expansion in industry occurred between 1900 and 1930. Similar declines took place in Hocking, Vinton, Athens, and Scioto counties in the southern part of the state. Very little of the reduction in the latter region can be attributed to expansion of industry. Depleted soil fertility, erosion, rough topography, and the competition from the more productive agricultural sections have been the important factors in bringing about the large reduction in many of the rural counties in the south and eastern part of Ohio.

LAND IN FARMS, PERCENTAGE CHANGE 1900-1930



Prepared by Department of Rural Economics

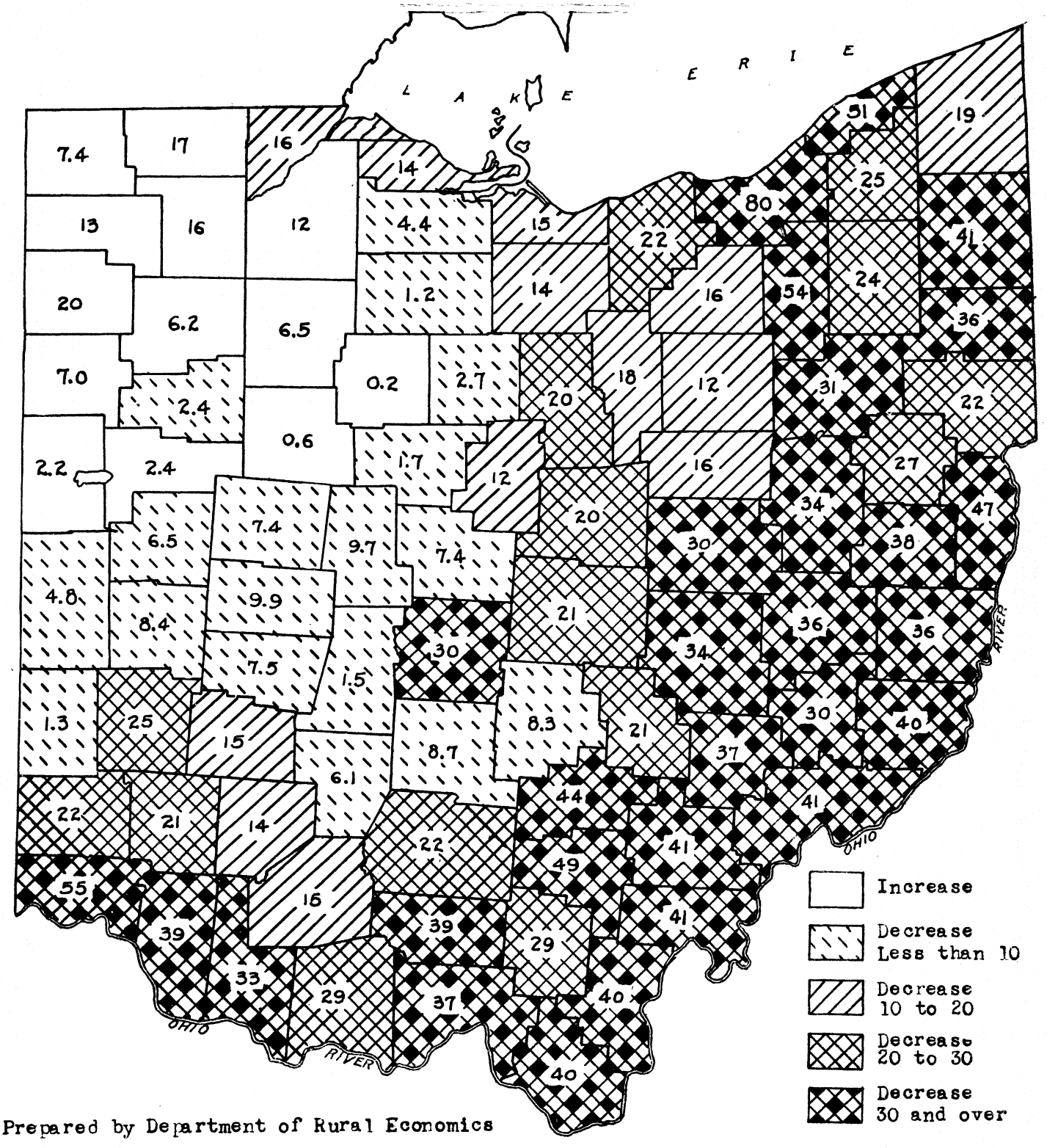
The number in the county designates the percentage change in the amount of land in farms

Land in Crops, Percentage Change

The area of land in crops showed an even greater falling off for the state as a whole than did the total area of land in farms (See map, page 49). In Cuyahoga County the acreage in crops decreased 80 per cent in 30 years, and in Vinton County 49 per cent. Decline in land in crops occurred most heavily in counties in the eastern half of the state and in the counties bordering on the Ohio River. Land in crops in all of the unglaciated counties declined 20 per cent or more and in most of them reductions of over 30 per cent took place.

An increase in the acreage of crops occurred during the same period in 13 counties located in the northwest quarter of the state. The most significant increase was in Paulding County where a 20 per cent expansion in crop acreage between 1900 and 1930 was reported. Northwestern Ohio was the last part of the state to be completely settled. This together with the fact that much of the land became available for cropping only after extensive drainage projects were installed accounts for much of the increase in acreage in crops since 1900.

LAND IN CROPS, PERCENTAGE CHANGE 1900-1930



Prepared by Department of Rural Economics

The number in the county designates the percentage change in the amount of land in crops.

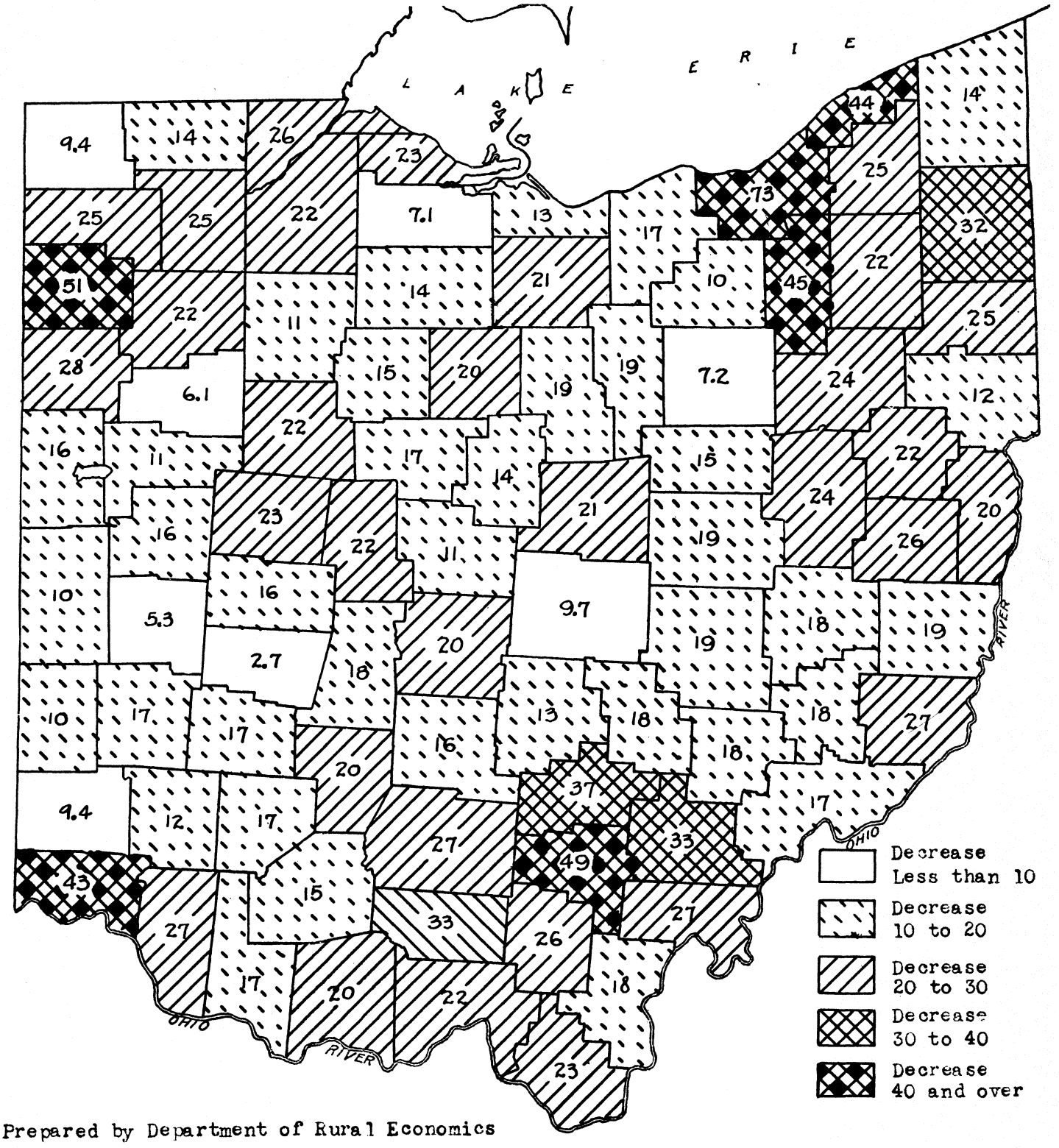
Number of Farms, Percentage Change

The change in number of farms reflects both the lessened acreage in farms and the increase in average acreage per farm. Paulding County, for example, showed a 1.6 per cent decrease in the land in farms but a 51 per cent decrease in the number of farms between 1900 and 1930. In this period the acreage per farm increased from 65 acres to 131 acres in Paulding County.

In two general sections of the State pronounced declines in the number of farms show up when mapped. These sections are similar to those in which heavy declines occurred in the acreage in farms, namely northeast and south central (See map, page 51).

There is but little correlation between the decline in the amount of land in crops and the number of farms. In Coshocton, Muskingum, Morgan, Washington, Noble, Belmont, and Guernsey Counties the decline in land in crops exceeded 30 per cent between 1900 and 1930, whereas the number of farms in these counties declined less than 20 per cent.

NUMBER OF FARMS, PERCENTAGE CHANGE 1900-1930



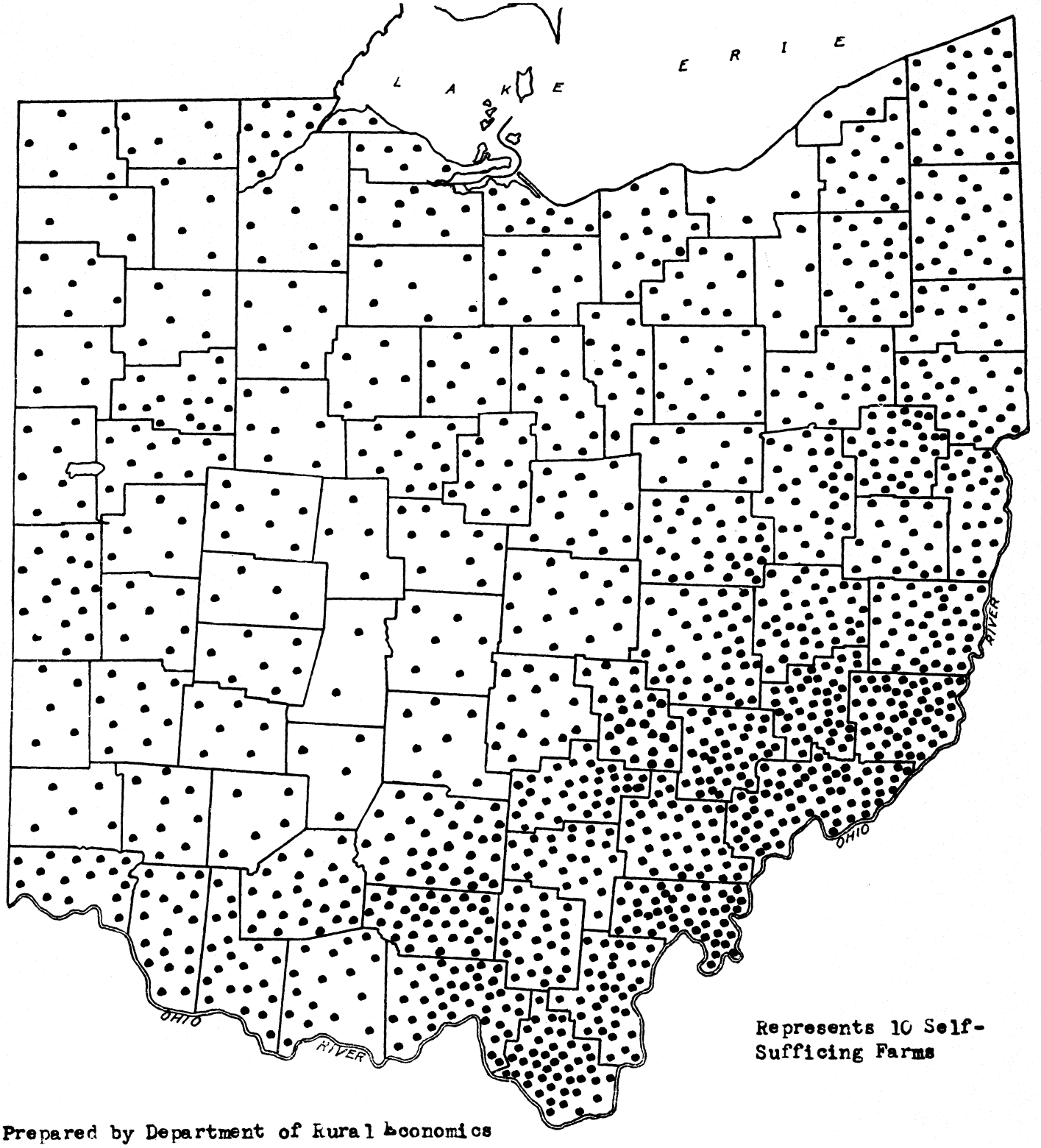
Prepared by Department of Rural Economics

The number in the county designates the percentage decline in the number of farms.

Self-Sufficing Farms

Out of a total of 219,296 farms in the state in 1930, the Federal census reports 14,436 self-sufficing farms or 6.6 per cent of the total (See map, page 53). Census officials considered a self-sufficing farm to be any farm on which the operator and his family used 50 per cent or more of the total value of the products produced on that farm. Self-sufficing farms in this state consumed 63% of the total value of the products produced by them in 1929. Total production on these farms amounted to only 1.6 per cent of the total agricultural production for the state, and produce entering into the commercial channels from the self-sufficing farms in 1929 represented only .7 per cent of the value of agricultural products sold or traded by all of the farmers in the state.

SELF-SUFFICING FARMS IN OHIO, 1930



Prepared by Department of Rural Economics

A self-sufficing farm as defined by the United States Census in 1930 is a farm on which the value of the farm products used by the operator's family was 50 per cent or more of the total value of all products of the farm.

Part-Time Farms

The census reports 19,009 part-time farms in the state in 1929 (See map, page 55). Census officials defined a part-time farm as one "where the operator spent 150 days or more at work for pay at jobs not connected with his farm or reported an occupation other than 'farmer' provided the value of products on the farm did not exceed $750". Those farms reported by the census as part-time farms averaged 38 acres per unit in 1930. The total acreage in these farms represented only 3.3 per cent of the total land in farms in the state. Many of the rural homes of non-agricultural workers were not included in the census classification of part-time farms because the acreage owned or operated by many of these people was less than 3 acres (6). Actually there are many more families that obtain part of their living from small tracts of land and are employed in non-agricultural occupations than indicated by the 1930 Census. It has been estimated that at the beginning of 1934 there were in the state of Ohio 100,000 or more non-farm families obtaining some of their living from the land.

The accompanying map giving the location of part-time farms in Ohio includes only those units classed as part-time farms by the United States census. Part-time farms are largely centered around the urban communities, and in the vicinity of mines, plants or other sources of employment. Part-time farming, like self-sufficing farming, is less common in the better agricultural areas than in the less productive sections. In southeastern Ohio the necessity to find supplemental sources of income in many cases has been an improtant factor in the development of part-time farming in the area.

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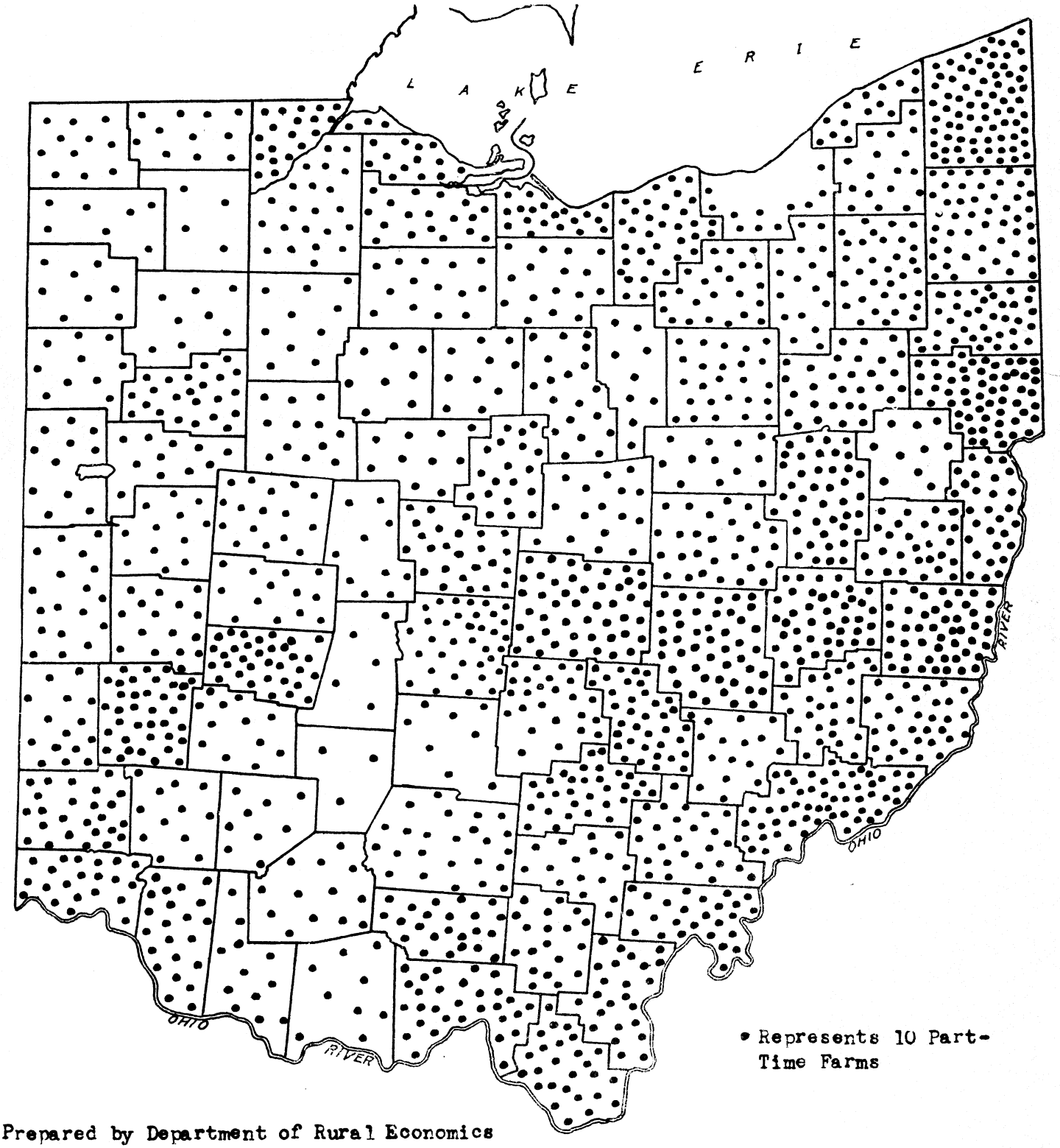
(6) The census enumerators were instructed not to report as a farm any tract of land of less than 3 acres, unless its agricultural products in 1929 were valued at $250 or more.

PART-TIME FARMS IN OHIO, 1930



Prepared by Department of Rural Economics

A part-time farm as defined by the United States Census in 1930 is one on which the operator spent 150 days or more at work for pay at jobs not connected with his farm, or reported an occupation other than farmer, provided total value of products did not exceed $750.

Farm Real Estate Values in Ohio, 1930

Value of Farm Land and Buildings

Township average values of farm land and buildings, as reported by the 1930 United States census, varied from less than $15 per acre to over $125 per acre (See map, page 57). Townships with land and buildings with values of less than $50 per acre were practically all located in the southeastern part of Ohio; higher values in this section are generally traceable to either city and industrial influences, or to limited amounts of truck garden soils, or to both. In the remainder of the State land and building values were practically all above $50 per acre in 1930. Values above $125 per acre were quite largely the result of city and industrial influences.

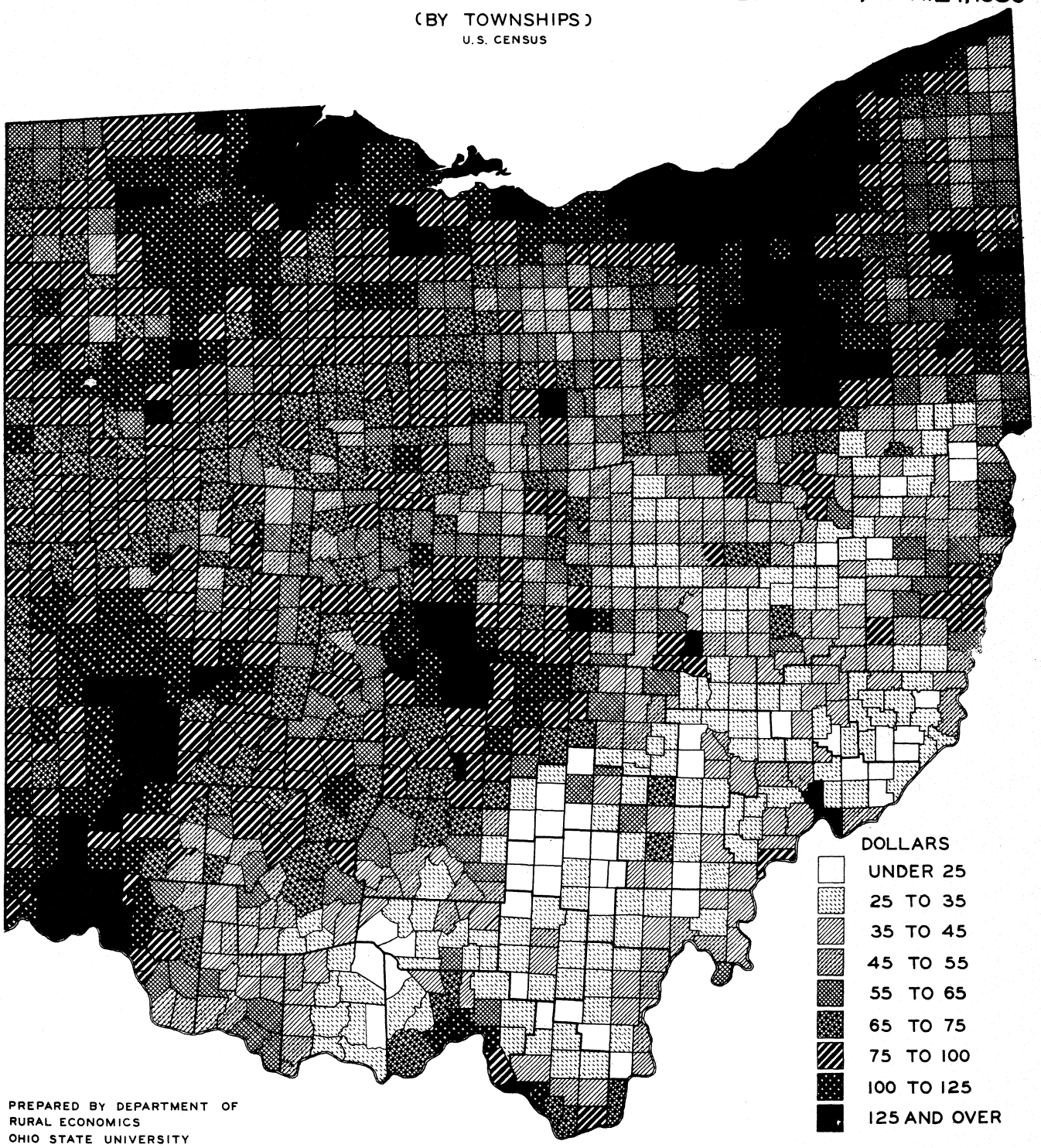
Exclusive of eight urban counties the average value of land and buildings in the state was $71.57 per acre in 1930. An analysis of data on actual sales of farm real estate in 1930 by H.R. Moore shows a very close relationship between actual sales and census values for Ohio. A similar analysis by Mr. Moore for 1934 indicated that land values at the close of 1934 were approximately 15 per cent below the 1930 level.

Land and building values were obtained by the census only on the land in farms. This gives only a partial picture of the situation in the areas of marginal and submarginal land. In such areas the land in farms is very likely the better land, the poorer having been abandoned or never included in farms. If real estate values had been obtained on both the land in farms and land not in farms the average value in the unglaciated counties would probably have been considerably below that reported by the 1930 census.

VALUE OF FARM LAND AND BUILDINGS IN DOLLARS PER ACRE, APRIL 1, 1930

(BY TOWNSHIPS)

U.S. CENSUS



PREPARED BY DEPARTMENT OF
RURAL ECONOMICS
OHIO STATE UNIVERSITY

Value of Farm Buildings

Building value represents both the facilities for production and for providing a family living. Farmers' dwellings represented 53.7 per cent of the total farm building value in 1930. In 25 counties in the state farm dwellings averaged, in value, $2000 or more per farm. There are two general areas of high dwelling values in the state. One area is in the northern part including the counties bordering on Lake Erie, in places extending back from the lake 2 or 3 counties and widening out to include several counties in the northeast corner of the state. The other is in the southwest part and includes Hamilton, Butler, Preble, Warren, Montgomery, Clark, Green and Fayette Counties.

In twelve counties in the southern part of Ohio, the value of farm dwellings averaged $1000 or less per farm. The lowest values were in Gallia, Monroe and Vinton counties.

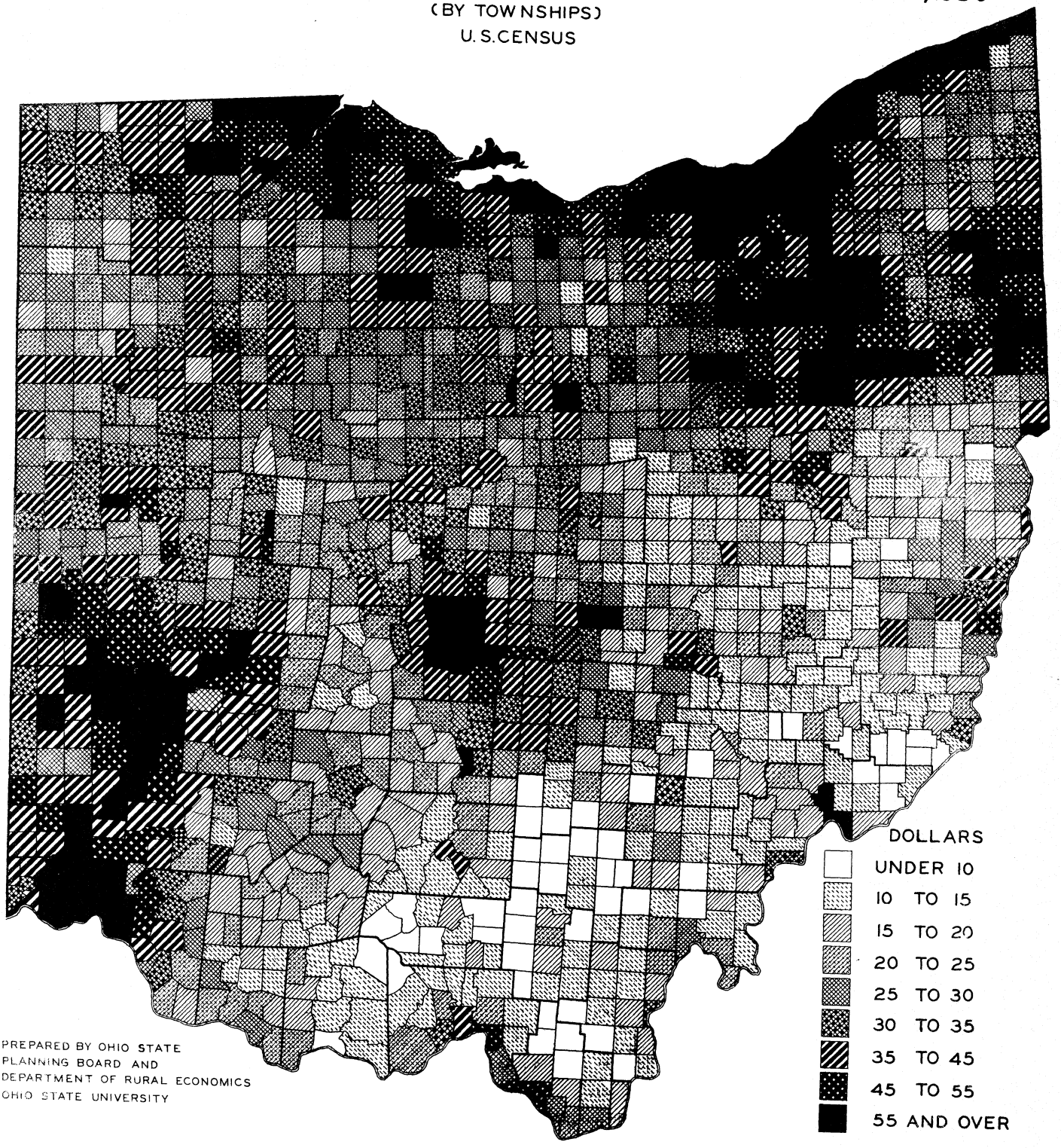
Farm building values other than for the farm house, or buildings used primarily in production such as barns, sheds, silos, etc., exceed the value of the dwelling in 20 per cent of the counties. Practically all of these counties with higher investments in buildings for production were located in northwestern Ohio.

The total building value per acre of land in farms ranged from $3 to over $75 in 1930 (See map, page 59). In the unglaciated section of the state there were 52 townships with building values of less than $10 per acre of land in farms. The size of farm has some effect on the value of buildings per acre. In the Scioto Valley, particularly in parts of Ross, Pickaway, Fayette, Madison, Union and parts of adjoining counties, where the farms are large, the building value per acre was a much smaller part of the total real estate value than in counties with smaller farms.

VALUE OF FARM BUILDINGS, IN DOLLARS PER ACRE APRIL 1, 1930

(BY TOWNSHIPS)

U. S. CENSUS



PREPARED BY OHIO STATE
PLANNING BOARD AND
DEPARTMENT OF RURAL ECONOMICS
OHIO STATE UNIVERSITY

Value of Sales of Farm Products per Person Engaged in Agriculture in Ohio, 1929

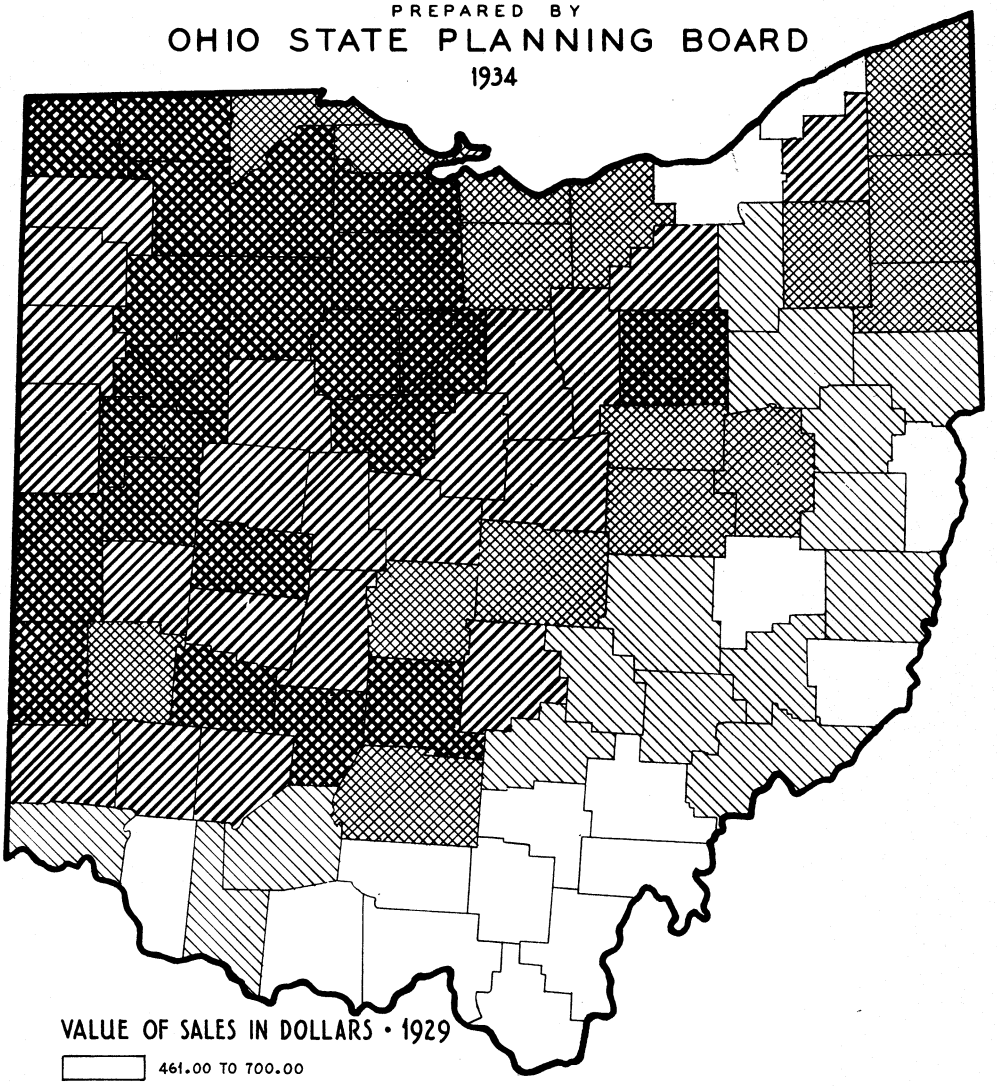
In 1929 the sales of farm products per agricultural worker varied between counties from $1600 to $461 (See map, page 61). An estimate of the 1929 gross cash agricultural income for Ohio was 344 million dollars. The total agricultural income for the state for the year 1934 was estimated to be 203 million or approximately 60 per cent of that of 1929. Assuming this reduction in farm income to have been fairly uniform over the state, then receipts per agricultural worker in the most unproductive counties would have amounted to only $276 in 1934. Out of the $276 it was necessary to pay the cash farm expenses, leaving a still smaller amount for the family living.

II-16

VALUE OF SALES OF FARM PRODUCTS
PER PERSON ENGAGED IN AGRICULTURE
STATE OF OHIO

SCALE OF MILES
0 20 40 60 90

PREPARED BY
OHIO STATE PLANNING BOARD
1934



VALUE OF SALES IN DOLLARS · 1929

461.00 TO 700.00

700.00 TO 900.00

900.00 TO 1100.00

1100.00 TO 1300.00

1300.00 TO 1660.00

STATE AVERAGE $1097.85

SOURCE OF DATA :
DEPARTMENT OF RURAL ECONOMICS
OHIO AGRICULTURAL EXPERIMENTAL STATION

Tax Delinquency on Rural Land in Ohio(7)

A study of tax delinquency shows 7 per cent of the rural land area was tax delinquent in 1928, 8 per cent in 1929, 12 per cent in 1930, 18 per cent in 1931, and 22 per cent in 1932.

Two distinct areas of heavy tax delinquency existed in the state in 1932; the townships which lie south and west of the Muskingum River in the unglaciated territory, and the townships in the industrial northeast (See map, page 63). By comparing the percentage of land that was tax delinquent in these two parts of the state in 1932 with tax delinquency in 1928 (see maps, pages 65 and 67), it will be observed that while much less in 1928 than in 1932, in these same parts of the state there was more tax delinquency in 1928 than in other parts of the state. In some of the counties there is evidence of a chronic tax problem. examples of this may be observed in parts of Pike, Scioto, Lawrence, Jackson, Vinton, and Athens Counties in the south and Ashtabula and Trumbull in the northeast.

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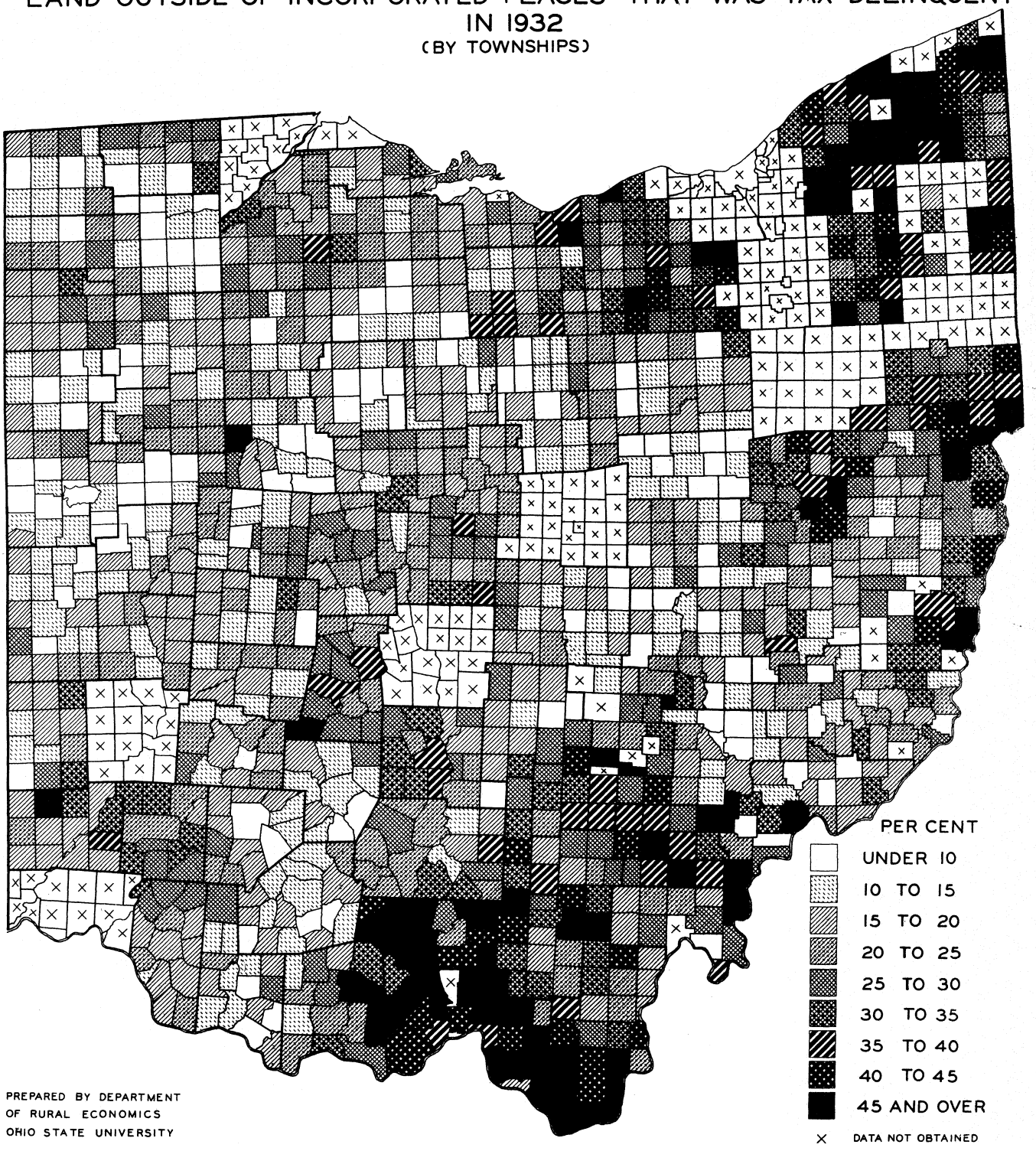
(7) Data assembled in C.W.A. Project F. 6, by H.R. Moore, Department of Rural Economics, O.S.U., State director.

LAND OUTSIDE OF INCORPORATED PLACES THAT WAS TAX DELINQUENT IN 1932

(BY TOWNSHIPS)



PREPARED BY DEPARTMENT
OF RURAL ECONOMICS
OHIO STATE UNIVERSITY

LAND OUTSIDE OF INCORPORATED PLACES THAT WAS TAX DELINQUENT IN 1932

(BY TOWNSHIPS)

x DATA NOT OBTAINED.

PREPARED BY DEPARTMENT OF RURAL ECONOMICS OHIO STATE UNIVERSITY

LAND OUTSIDE OF INCORPORATED PLACES THAT WAS TAX DELINQUENT IN 1928

(BY TOWNSHIPS)

× DATA NOT OBTAINED.

PREPARED BY DEPARTMENT OF RURAL ECONOMICS, OHIO STATE UNIVERSITY

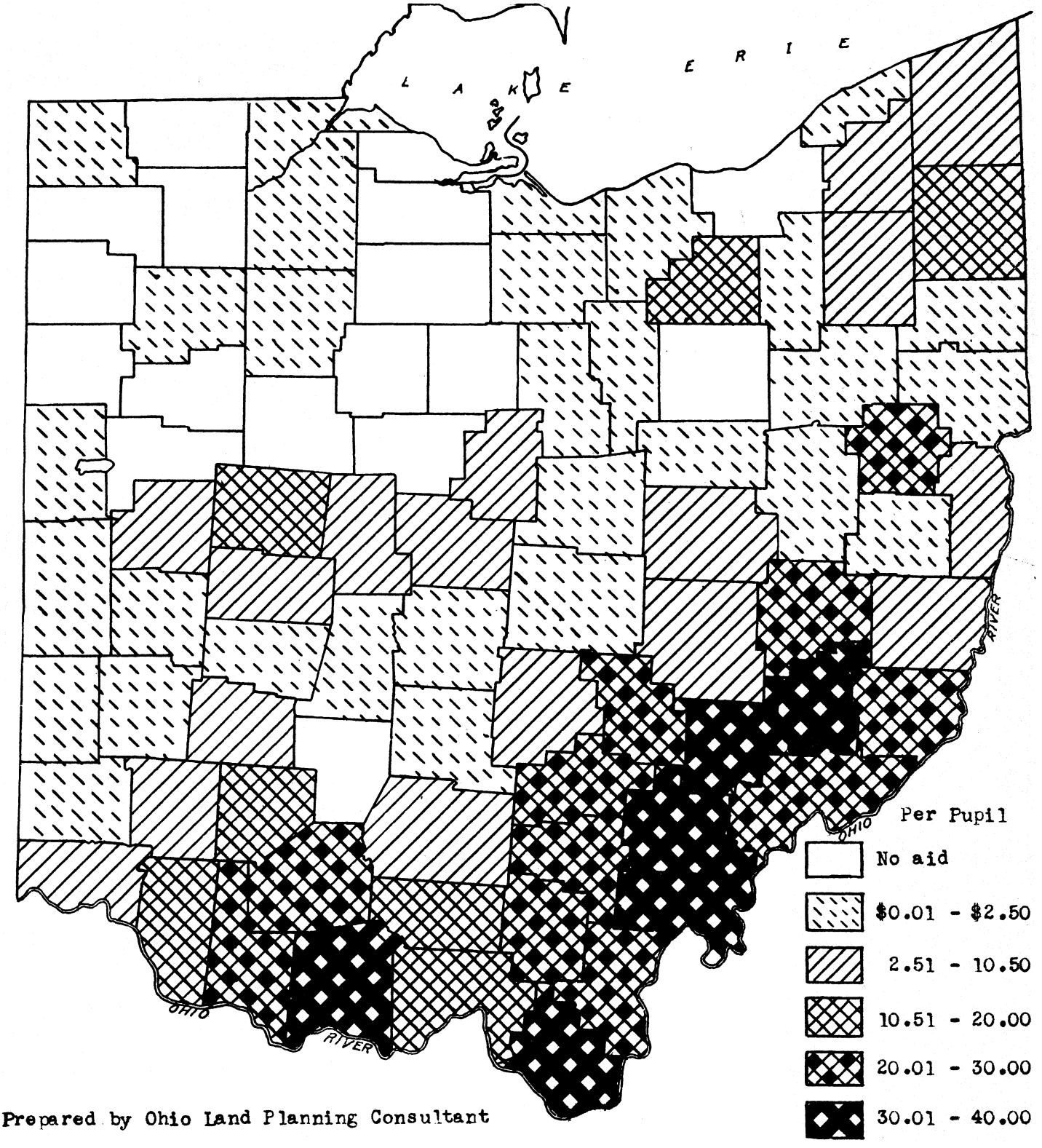
Distribution of Educational Equalization Funds per Pupil Enrolled in County School Districts, 1932

Ohio is committed to a policy of providing satisfactory minimum educational opportunities below which no locality in the state shall be allowed to go. The present state-aid law provides for the funds whereby the less able districts are able to maintain such educational facilities.

The taxable base per minor between the age of 5 and 18, which is some indication of local ability to support a school system, was $6998 in Ohio in 1932. Extreme variations in this taxable base exist among the individual school districts and among counties. In seven counties in the state in 1932 the average taxable base per minor (5 to 18 years) was over $8000 and in 6 counties the taxable base was below $3000.

To make possible a satisfactory minimum educational program in all counties the state, during the year 1932, disbursed $4,144,042 as aid to weak school districts. Of this amount $3,643,953 went to districts other than exempted cities and villages. The average expenditure in all counties receiving any state-aid was $9.23 per pupil enrolled. All the counties receiving over $20 per pupil were located in southern and southeastern Ohio (See map, page 69). The taxable base in each of these counties was less than $4100 per minor in 1932. The maximum amount of state-aid, or $39.66 per pupil, was received by Noble County.

Distribution of Educational Equalization Fund (School Aid)
Per Pupil Enrolled in County School Districts, 1932



Prepared by Ohio Land Planning Consultant

Open-Country Population on Active Relief in Ohio, November 1, 1934 (8)

On November 1, 1934, 1,128,800 persons were reported to be on active relief in Ohio(9). Twelve and seven tenths per cent or 143,623 of these people were located in the open country(10). The open-country population on active relief included 74,293 non-farm family people and 69,330 farm family people. The farm people on active relief on November 1, 1934, represented 6.9 per cent of the 1930 rural farm population, whereas the percentage of all people in the state on active relief was 16.9 for the same date.

Numerous scattered townships in the state reported large numbers of open-country people on relief but the heaviest relief load among the open-country population was to be found in an area in the central part of southern Ohio and which extends to the northeast through Perry, Muskingum and Guernsey Counties (See map, page 71). This area is similar to that in which the amount of land used for agriculture is small and to the area in which tax delinquency is high.

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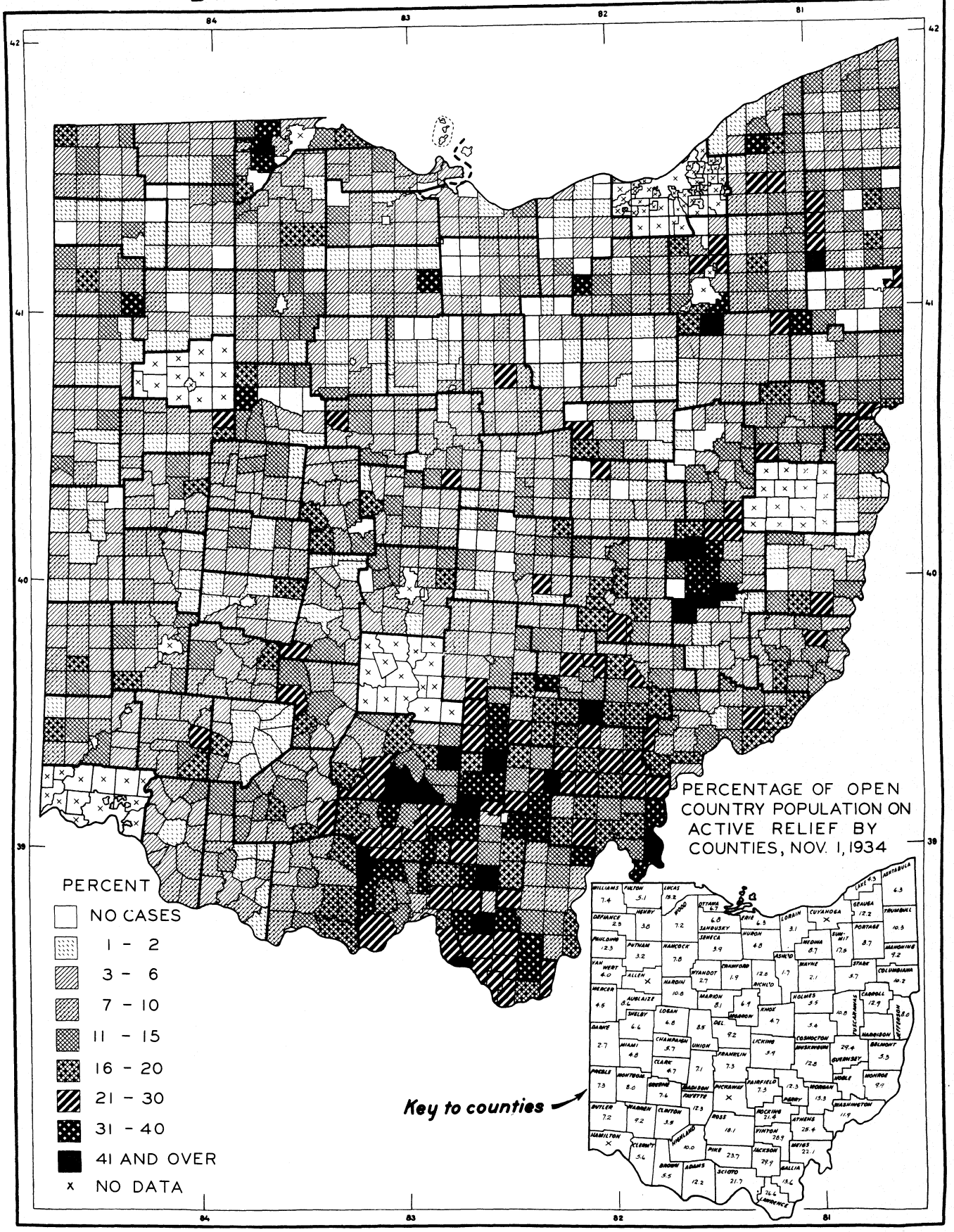
(8) Open-country population as used here refers to persons living in the open-country and in hamlets of 50 persons or less.
(9) Number of persons on active relief November 1, 1934 was supplied by the statistical division of the Ohio Relief Commission.
(10) The number of persons on active relief in the open-country was obtained by applying the average size of family on active relief in each county in the state to the number of open-country families on relief in each township in the county. The number of families on relief in the open-country, by townships, on November 1, 1934 was obtained by a survey conducted by A.L. Sorensen, Director of Rural Rehabilitation.

PERCENTAGE OF OPEN COUNTRY POPULATION ON ACTIVE RELIEF BY TOWNSHIPS IN OHIO, NOV. 1, 1934



PREPARED BY OHIO LAND PLANNING CONSULTANT.
DATA COLLECTED BY A.L. SORENSEN, DIRECTOR OF RURAL REHABILITATION FOR OHIO.